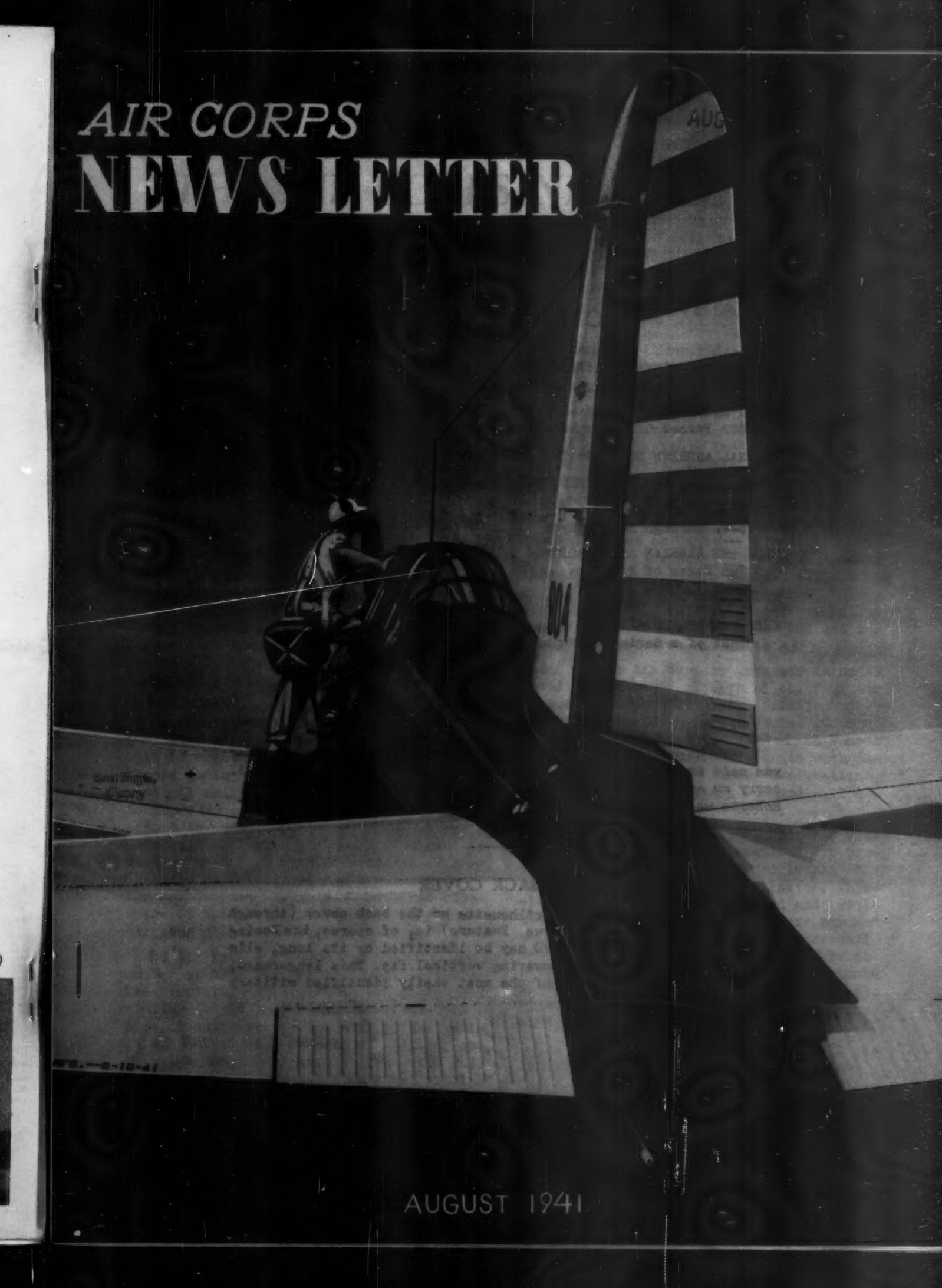
AIR CORPS
NEWS LETTER



AUGUST 1941

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THE COVER

The cover picture is of the Vultee BT-13 (basic trainer) and was made available through the courtesy of FORTUNE, which will carry an extensive story on Vultee in the September issue. Mike Roberts was the artist who made the photograph.

THE BACK COVER

The airplane shown in silhouette on the back cover (through the courtesy of Aviation News Feature) is, of course, the Boeing "Flying Fortress." The B-17D may be identified by its long, slim fuselage, four engines and towering vertical fin. This long-range, hard-hitting weapon is one of the most easily identified military aircraft in the world.

HEADQUARTERS ARMY AIR FORCES WASHINGTON, D. C.

THE AIR CORPS NEWS LETTER

VOL. 24 AUGUST, 1941 NO. 14

GLIDERS ORDERED

Troop Carriers Building

Engineering research and training in connection with the prospective use by the Army Air Forces of troop-carrying gliders has been underway for more than six months, and several experimental multiplace gliders are scheduled for delivery for tests within the next 60 days.

Twelve Army Air Forces officers already have completed courses in glider flying, to qualify them as instructors and supervisors in the event glider training is expanded in the army. Another six are undergoing training at the glider school at Elmira, and six more are scheduled to enter that school sometime this month. No other assignments have been revealed and future plans are not known at this time.

The entire army glider program is on an experimental basis, but various sources have indicated that a glider force definitely will be created. The Chief of the Army Air Forces declared at the close of the recent national soaring contest, at Elmira, that he hopes the army will "have a glider force second to none" and promised that "we shall have such a force, and we will have it when we need it." Further evidence of army plans is contained in the organization of the new Support Commands, as outlined elsewhere in this issue, which calls for "troop-carrying glider units."

The Air Forces have ordered an undisclosed number of training and transport gliders. The training gliders are two-place and similar to the one such powerless plane already delivered to the army by the well-known Schweizer brothers, of Elmira, and in which Maj. Gen. Arnold flew with Maj. Fred R. Dent, Jr., at the national soaring meet. The troop-carriers are eight and 15-place ships, and are true gliders, while the trainers actually are true soaring planes.

No details of the army's plans with re-

(Continued on Page 4)

COOPERATIVE AVIATION

Five Support Commands

All air elements necessary for the complete support of ground forces are being grouped into five Air Support Commands, newest combat units of the Army Air Forces. One of the commands, the First, will be seen in action for the first time during maneuvers in November.

Formation of the new units was described in Washington as "another step in the organization of the Army Air Forces that is intended to enhance the combat efficiency of the whole military establishment." The step will make possible effective and close cooperation between ground forces and the purely support-type air units.

One of the Air Support Commands is under the direct control of each of the four Air Forces, while the fifth will function under control of the Air Force Combat Command itself. The First, Second, Third and Fourth Air Support Commands will operate with the four armies bearing those designations, and the Fifth Air Support Command will cooperate with the Armored Force.

Each of the Air Support Commands will contain all the elements required to provide the support necessary to insure the success of a ground force's mission. These elements will include some old and well-known air units and some that are new and not so well-known, even to air personnel. Grouped in the support category will be observation (both lighter and heavier-than-air), light bombers, dive bombers, photo planes, gliders and transports for parachute and air landing troops.

The command and staff functions will be centered as follows:

First Air Support Command, commanded by Col. William E. Kepner, headquarters at Mitchel Field, N.Y.

Second Air Support Command, commanded by Col. Hume Peabody, headquarters at Oklahoma City.

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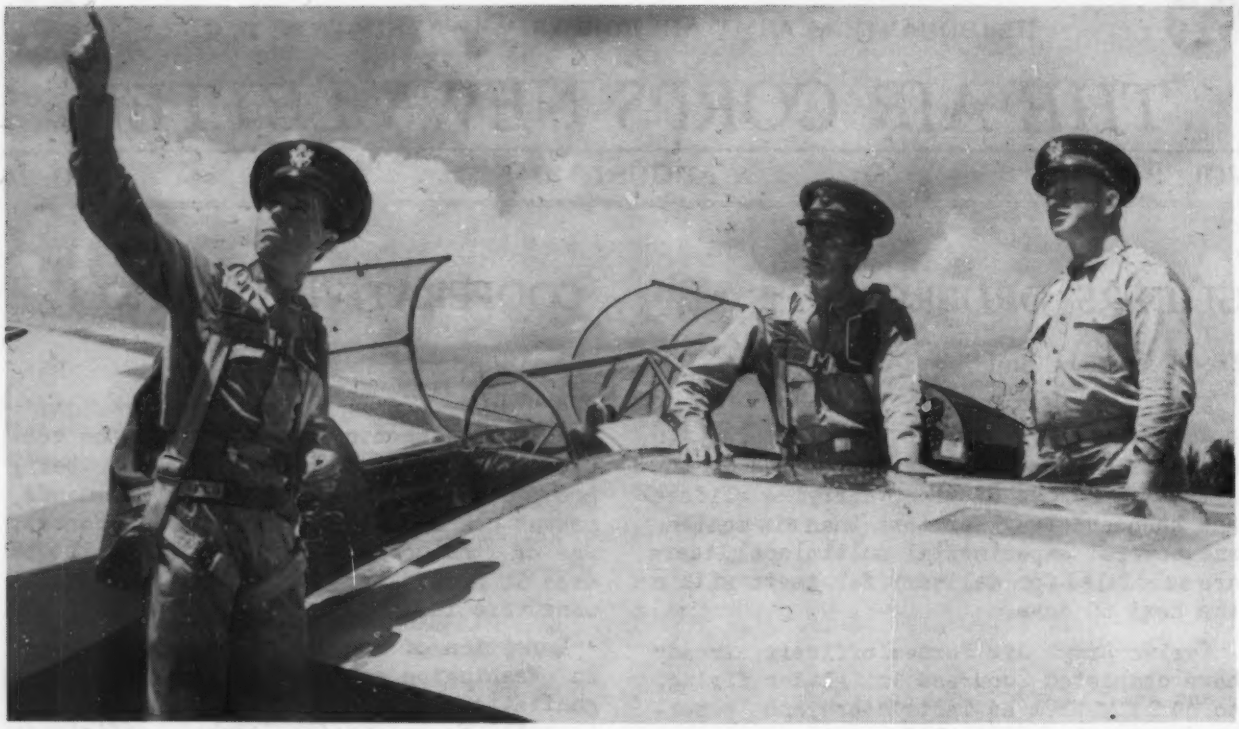
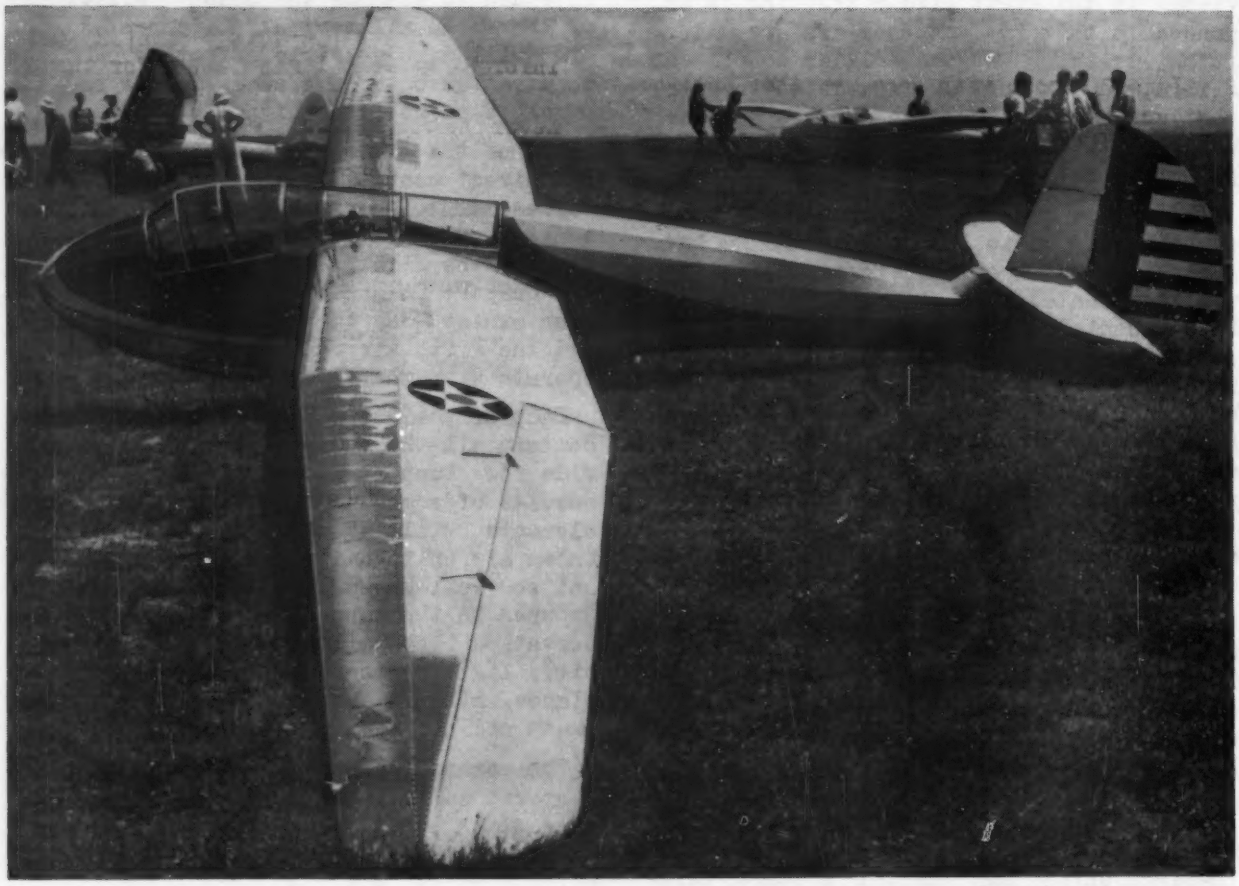




The Army Air Forces' first glider, designated TG-2 (Training Glider Type 2), is shown in the lower picture 'on the line' at the National Soaring Contest at Elmira, N.Y. Left to right above are Lieut. John C. A. Watkins, Maj. Fred R. Dent, Jr., and Maj. Walter S. Lee, also at the soaring contest.

Photos by Harold W. Kulick.

They Glide Through the Air

By Major Fred R. Dent, Jr.

WE LEARNED THIS WAY

Six Air Corps officers reported June 1 to Harris Hill, Elmira, N. Y., for three weeks' instruction in glider flying. For those members of the class who had been flying Boeing "Flying Fortresses," it might appear to be a step backwards. However, even these men unknowingly were in for three weeks of thrills, excitement, and experiences they will never forget.

Besides myself, the group at Harris Hill consisted of Capt. M. J. Lee from Wright Field, Lieuts. C. L. Luke and W. Filer from Middletown Air Depot, and Lieuts. J. J. Brennan and R. D. Bower from Fairfield Air Depot. Officers from Middletown and Fairfield arrived in Army transports. Lee and I made our appearance in an Army PT-13B, which was used for local flights during the course of instruction.

June 2 broke with good weather and the group assembled at Big Flats Airport near Harris Hill. Two Franklin single-place utility gliders were hauled out of the barn that serves as a hangar. First tows were made by automobile with a 200-ft. rope with the students given definite instructions not to let the glider leave the ground. These ground tows progressed to speeds of 50 m.p.h. Seated in the glider with your body only a few inches off the ground, 50 m.p.h. gives a definite sensation of speed.

After a half-dozen ground runs, the student was permitted to take the glider a foot to 18 inches in the air on the tow flight, cutting loose at the end and landing straight ahead. On succeeding tows the permissible altitude was increased to 10, 30, 50, 100, 300 and finally 500 feet. From 100 feet the student would make 180° approaches. From 300 feet a 360° approach was made. These altitudes seem extreme in terms of the altitudes used for these maneuvers in powered planes.

The landing technique presented the biggest transition problem. The approach to the field is made at a speed 10 to 15 miles above the stalling

(Continued on Page 6)

Maj. Fred R. Dent, Jr., is Assistant Chief of the Aircraft Laboratory at Wright Field. He was one of the original class of officers assigned as students at Elmira, and was pilot of the Air Corps glider in which Maj. Gen. Arnold flew from the Elmira Airport (Big Flats) to the National Soaring Contest at Harris Hill.

THEN THIS HAPPENED

At 1:55 p.m. on June 18, I took off from the Big Flats Airport with a dual airplane tow in a Schweizer two-place sailplane with Mr. John Robinson in the rear cockpit. In the other sailplane were Capt. M. J. Lee and Mr. Raymon Parker. The airplane, a Waco trainer piloted by Lieut. Luke, towed the two sailplanes in the vicinity of the airport for 30 minutes, at which time the formation was at an altitude of 4,000 feet. By previous arrangement, it was agreed that if good thermal activity was encountered, Dent and Robinson would proceed in the direction of Williamsport, whereas Lee and Parker would return to the Big Flats Airport.

Upon cutting loose, Robinson suggested that I head for the cloud which was on our left. I looked to the left, and seeing two clouds, I headed for the "white one." John informed me that I was headed for the wrong cloud, a fact which I had suspected, but never having flown a sailplane on instruments, I would have been content to have started my experience on a "white one." The black cloud looked mighty black, but I figured John must know what he was doing.

We entered the cloud at 3,700 feet, and were immediately on instruments. Soon the variometer showed a good rate of climb, and we started the spiral. How many turns we made, I'd never guess, but it seemed that I had never been in any other position. The altimeter climbed 5,000, 6,000, 7,000, then 8,000 feet. Here, I lost lift and came out of the side of the cloud. The variometer again recorded a good rate of climb and the spiraling started all over. The altimeter was rising rapidly and we started picking up ice. The front of the windshield and the leading edges of the wings were taking on a good load.

I wondered how long we could continue to rely on the instruments. Soon the airspeed indicator went out of commission. However, having become familiar with the sound of the sailplane at various air speeds, this did not worry me too much. The altimeter now read 9,500 feet,

(Continued on Page 10)

GLIDERS . . . (Concluded) spect to a glider force have been revealed. General Arnold said the form of the force had not been decided upon—that the outcome of the experimentation would determine that. So far, however, only airplane pilots (officers) have taken the glider training, although it is considered fairly safe to assume that nonrated personnel eventually will be taught to fly the motorless aircraft.

One of the first officer-students, some of whom were taught to soar by the Elmira Gliding Area Soaring Corporation's instructors and the others by the Lewis School of Aeronautics, at Lockport, Ill., bailed out of his soaring plane and became the first "glider caterpillar" in the Army Air Forces. He was Second Lieut. Fred H. Highley, who bailed out at Lockport when the ship spun in after losing the left wing. Lieutenant Highley suffered no ill effects from his history-making leap.

General Arnold was emphatic in his description of army glider plans at the banquet which closed the national soaring contest. He pointed out that the Air Forces' decision of months ago to study the use of military gliders "was horribly justified when German troops swarmed down in gliders onto the island of Crete and captured the historic Greek island after bloody fighting."

"We in the Army Air Forces have never denied or failed to appreciate the military possibilities of the glider," General Arnold stated. "Power driven planes have been our first consideration, because our geographical position has made that necessary. Our first priority must go to the long-range, heavy bomber, a weapon so necessary to carry out our policy of hemisphere defense. But that did not and does not now mean that, merely because our great distances make our military situation different than that of Europe, we have ignored the glider.....

"We can't expect to tow strings of gliders behind airplanes over 3,000 miles of ocean, but we are certain that there are many missions for gliders which may develop in the future....We do know that we must have gliders, perhaps hundreds and possibly thousands of them, capable of carrying at least 15 men each, together with full equipment, including rifles, machine guns and even light cannon."

The first glider delivered to the Air Corps now is at Wright Field, undergoing routine tests. The glider, designated TG-2 (Training Glider Type 2) is an all-metal, two-place sailplane. It has a span of 52 feet, wing area of 214 square feet, empty weight of 480 pounds, useful load of 400 pounds, aspect ratio of 12:6 and gliding ratio of 23:5.

Although the Schweizer brothers delivered the first ship, it was designated TG-2, the designation TG-1 originally having been assigned to those ships being manufactured by the Frankfort Sailplane Company, of Joliet, Ill., none of which has been delivered. The Frankfort sailplanes will be of steel-tube fuselage type, with fabric-covered wooden wings. Both types will have dual instruments, including variometer, altimeter and air speed indicator, while provisions are being made for bank and turn indicators and compasses.

SUPPORT . . . (Continued) Third Air Support Command, commanded by Col. Asa N. Duncan, headquarters at the Savannah (Ga.) Air Base.

Fourth Air Support Command, commanded by Col. Robert C. Candee, headquarters at Hamilton Field, Calif.

Fifth Air Support Command, commanded by Brig. Gen. Junius W. Jones, headquarters at Bowman Field, Ky.

The Air Support Staff, Col. William E. Lynd, chief, headquarters at the Army War College, Washington, D.C.

The Headquarters and Headquarters Squadrons of the Fifteenth, Sixteenth and Seventeenth Bombardment Wings (Light) are forming the basis for the similar organizations of three of the Air Support Commands, according to instructions for activation of the commands. These instructions also stated that:

"The further development of doctrines, tactics and technique; the preparation of training directives; the training of aviation in conjunction with ground forces will require close liaison and interchange of information and recommendations between all echelons of command concerned with the problem. Therefore, direct contact and communication between the several commanders concerned is authorized with respect to this subject."

All observation aviation, including the squadrons which were part of the National Guard prior to their mobilization, is being assigned to the Support Commands. They will be transferred at a time recommended by the Chief of the Army Air Forces, and in the meantime will remain with the ground units to which they are now assigned. Glider units have not been formed yet, of course, and dive bombers only now are being

(Concluded on Page 30)

COMMANDS CARIBBEAN

Maj. Gen. Andrews Elevated

The largest command involving both ground and air troops ever assigned to an air officer was given Maj. Gen. Frank M. Andrews last month when he was selected to replace Lieut. Gen. Daniel Van Voorhis as head of the entire Caribbean Defense Command and the Panama Canal Zone.

Many other senior Army Air Force officers were shifted to new commands or promoted, or both, about the time General Andrews, who now heads the Air Defense Command in the Caribbean area, was given his important new assignment. Several brigadier generals were made major generals and a number of others received high temporary rank.

Brig. Gen. Herbert A. Dargue was made a major general and given command of the First Air Force, at Mitchel Field, New York. Brig. Gen. Millard F. Harmon was elevated to the same rank, with assignment as commander of the Second Air Force, at Fort George Wright, Washington, and Brig. Gen. Lewis H. Brereton was made commander of the Third Air Force, also with the rank of major general.

The appointment of General Andrews to head the entire defenses of the Caribbean area is considered particularly significant at this time, and was so hailed by authoritative commentators in Washington, in view of the Army's new policy of forming "task forces" for service in a particular area. This policy, as outlined by the Chief of Staff, involves the grouping of all elements under the command of a senior officer of an arm which seems most likely to bear the brunt of operations in that particular situation or area.

Recognition of the increasingly important role which the air arm plays in certain theaters in determining the success or failure of the whole task force was seen in General Andrews' assignment. In the event of an attack in the Caribbean or Canal Zone areas, it has been widely accepted that initial operations almost certainly would be in the air.

An Analagous situation may be found in a comparison of the Panama Canal Zone with the British base at Singapore. At both, extensive, permanent and vital facilities are contained in a very small area. Both are the

(Continued on Page 16, column2)

LANDING MATS

Mobile "Fields" Tested

Portable landing mats to permit the use of all sorts of unprepared fields within the theater of operations are being developed for the Army Air Forces by the Corps of Engineers, the Under Secretary of War disclosed this month.

The mats are for use by medium and heavy bombardment, reconnaissance, and transport planes. Experiments on mats for use by these types are virtually completed, and the Chief of the Air Corps has issued a directive for work on a lighter type to be used by pursuit and other lighter military aircraft. These lighter mats are similar to the ones which have been developed in England for the Royal Air Force.

Testifying before the Senate's special defense investigating committee in July, Under Secretary of War Robert P. Patterson stated:

"Three successful types have been developed which are suitable for use by heavy bombers, but are considered too heavy for use on fields on which pursuit ships and light bombers are to land. Tests are now being made on other types which will be adequate for the lighter military aircraft and which will have the advantage of lighter weight and ease of placement.

It is reported that the Panama Canal Department wants a heavy landing mat for use with heavy traffic on auxiliary fields, in the event that tactical operations require this traffic. Some fields which are suitable for use by lighter types of aircraft could not be used by heavier craft without reinforcement of this type.

Experimental work looking toward the development of mats of this type was initiated in late 1939, when The Adjutant General issued a directive to the Corps of Engineers, stating that the Air Corps had an immediate need for a portable landing mat. A subsequent letter from the Chief of the Air Corps to the Chief of Engineers urged efforts to secure something usable at once, rather than strive for perfection at some later date. It was stated that the consideration of camouflaging of the runways was of prime importance.

A program involving various types of tests was initiated. Truck tests at Fort Belvoir, Va., were held to determine which of

(Continued on page 16, column 1)

WE LEARNED... speed. Soaring is normally done at speeds approximately five miles above the stall. Therefore, when the pilot decides to land, he increases rather than decreases his speed. There is no leveling-off process. The glider is flown right on the ground with this excess speed.

Once on the ground, the ground roll can be reduced by pushing forward on the stick, putting the weight on the nose skid and the single landing wheel. The roll can be still further shortened by following this with brake action. On the Franklin gliders the brake is applied by pulling a handle attached to a cable. Outside of the tow cut-off release, this is about the only use for the pilot's left hand. The absence of a throttle quadrant proved most annoying.

All instruction workup to this point had been solo in Franklin gliders and all towing done by auto. There is no small thrill experienced in an auto traveling across a sod airport at a speed of 55 m. p. h. with the driver alternating his attention between where he is going and how the glider is coming.

After approximately seven hours in Franklin gliders, the instruction shifted to two-place Schweizer sailplanes. These are much higher performance sailplanes. The student occupies the front cockpit and the instructor, the rear. The student is faced with the operation of a new gadget known as a "spoiler." This is a spring-loaded, venetian-blind type, operated by a lever on the left of the cockpit. The brake is actuated by the heel of the foot. This can be accomplished by either heel without removing the feet from the rudder. Training in these sailplanes was carried out with auto, winch, and finally airplane tow.

For any powered pilot who has not experienced a winch take-off in a glider, there awaits for him one of the biggest thrills of his life time. To anyone unaccustomed to glider launching, it looks like a suicide attempt. With a rope approximately 1,200 feet long, the sailplane gains an altitude of 600 to 700 feet. What happens if the rope breaks? Well, nothing, provided the pilot is alert, drops the remaining tow rope, noses down, and has sufficient altitude to land straight ahead or to make a 180° turn back to the field. Gliders can turn back onto the take-off field when such action would be disastrous for an airplane.

A little friendly cooperation comes in handy on airplane tows. The glider gets off the ground at about 45 miles per hour and climbs to 25 or 30 feet. At this time the poor tow plane is still struggling and running along the ground. The sailplane pilot then dives the sailplane to within 10 feet of the ground. This reduces the drag and permits the powered tow plane to clear the fence. The sailplane pilot can be quite a help or a hindrance, depending on both his experience and technique.

After an airplane tow, the sailplane pilot usually cuts loose at 1,500 feet. He would then either slope or thermal soar until these conditions failed him or he wished to return. On one of these flights the pilot climbed to 6,500 feet after cutting loose at 1,000 feet. On another occasion, a student stayed up over three hours. There is really a lot of opportunity to use a "biscuit gun."

Instruction during the course was in excellent hands. Among the instructors were John Robinson, last year's national soaring champion; Parker Leonard, an old glider pilot who has forgotten more than most people ever learn about gliding; Ray Parker, one of the leading sailplane pilots on the west coast; and Jay Buxton, the grand old man of gliding.

During the course of instruction all students obtained their "C" rating, which is a recognition established by the Soaring Society of America. To obtain this rating, the pilot must stay above the altitude of release for a period of five minutes. All students also obtained the C. A. A. rating of "Commercial Glider Pilot."

The next stage of instruction was dual airplane tow. The formation was the conventional Vee with the power plane in No. 1 position. The ropes leading from the airplane to the sailplanes were approximately 400 feet long, the one being about 30 feet longer than the other. This stage was not radically different from power plane formation flying but did require practice in keeping the rope tight under all conditions. A Waco trainer with 220 hp. Continental engine was used as a tow plane.

Students had several flights as pilot of the tow plane. For those pilots who complain about towing targets, I suggest a couple hours' towing gliders. I don't think they will ever complain again. The airplane feels as if it is continually stalling. If the sailplanes climb, they exert an up load on the tail which has to be offset by the elevator movement, at the same time trying to keep constant air speed and altitude. In addition, a 220 hp. Waco has no reserve power when hooked to two two-place sailplanes.

The course terminated in cross country

(Continued on Page 24)

Admission Examinations Altered

CADET MENTAL TESTS UNDERGOING REVISION

Several changes and simplifications in the Air Corps mental exams for candidates for training as aviation cadets will be incorporated in the examination given in August. The examination has been developed and assembled by the Research and Analysis Group of the Personnel Procedure Section of the Adjutant General's Office, which has been making studies of the test.

Work on the examination has included two types of proposed changes, in subject and in method. The subject matter is to be changed first, the method in November. The exam formerly included nine compulsory subjects. The August exam will include five compulsory subjects, and two optional subjects which may be selected from a group of five.

The compulsory subjects are English Grammar and Composition, Arithmetic, Algebra, (to include quadratics), Plane Geometry, and Plane Trigonometry. The student must also select two subjects from the following: United States History, General History, Elementary Physics, Inorganic Chemistry and any modern language except English. The last two subjects are new additions to the curriculum. Geography has been dropped.

Important changes in the method of the examination have been made to shorten the time required to take the exam and to facilitate grading. The new method, which will not be used until the November mental exam, consists of the multiple-choice answer type of question. This method eliminates all discussion or essay questions, and is considered to ensure a fairer and more reliable exam.

The problem of grading the examinations has become acute because of the enormously increased number of applicants taking the exam. In August, 1939, only 159 candidates took the exam. A year later, August, 1940, this number rose to 1254. In November, 1940, a total of 2398 candidates were examined. On the last exam, May, 1941, exactly 3250 applicants took the test. Between 4000 and 5000 are expected to be examined in August.

Because of this increase, grading the examinations by a board at Randolph Field now requires many weeks of work. Using the multiple-choice type of questions, the time required for grading the examinations will be radically cut, and the time required to take the examination will be cut in half as well. The elimination of discussion questions by the multiple choice method will cut the time required for each exam from two hours to one hour. The entire exam will thus require seven instead of 14 hours.

Using an electric scoring machine with one operator, answers can be quickly scored, as the machine makes an electrical contact when the answers are on the right spot on the separate answer sheet. Five thousand exams can be graded in two weeks.

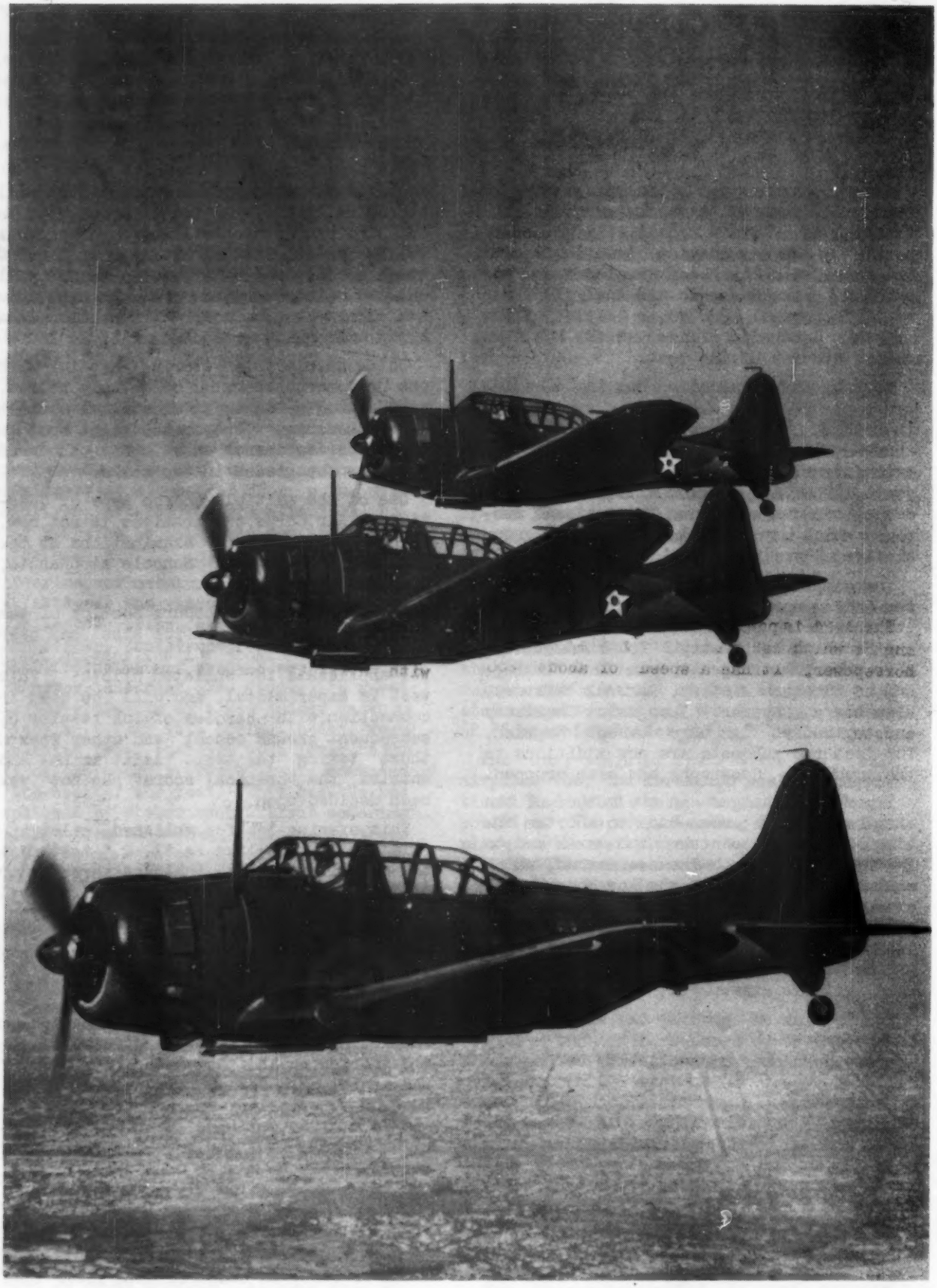
Use of the multiple-choice type of question on Air Corps examinations is not new. It has been used on examinations at the Air Corps Technical Schools at Chanute, Scott and Lowry Fields.

The Personnel Procedure Section of the Adjutant General's Office also has been developing a "Higher Classification Test" for applicants for enlisted pilots. This test is experimental, and will be used in connection with studies of the results of subsequent ground school and other work of those taking the test. As it is new and untried, the "critical score" has not yet been decided upon.

This examination for enlisted pilot applicants is more like an "I. Q." test than the mental exam. It includes three types of questions, arithmetic reasoning, general vocabulary, and number series completion, to measure inductive reasoning. This type of examination also has been used by the Air Corps in selecting prospective technical personnel.

Studies of the mental examination are continuing with a view toward simplifying and shortening the test. Modernization of the mental exam, through studies by experts in exam formulation, may eventually change the form of determining the basic educational level, in order more accurately to include everyone who is qualified.

More than 300 airplanes from other fields landed at Randolph Field, Texas, during the month of June, as compared with fewer than 60 visiting ships during the same period five years ago.



'The dive bomber is used to support, and works in close cooperation with, ground forces -- particularly armored divisions. Here are the first dive bombers to be turned out by Douglas for the Air Support Commands of the Army Air Forces.

Army Air Forces Get New Type Planes

DIVE BOMBERS DELIVERED

Many on Order

Initial deliveries of the new Douglas A-24 dive bomber, which is virtually identical to the Navy SBD-3, have been received by the Air Corps. The Air Corps has bought one group of this type for each armored division. The assignment of contracts to North American Aviation Corp. and to Curtiss-Wright for other dive bombers has been announced by Under Secretary of War Patterson. These will be newer types.

The multi-placed ship, which somewhat resembles the Army A-17 in appearance, has been highly praised by a Wright Field test pilot as a "sweet flying ship." Three similar planes were borrowed from the Navy by the Air Corps three or four months ago so that Army pilots could build up a technique of operation for this type of plane.

The A-24 is powered with a Wright Cyclone engine which has a military rating of 1,000 horsepower. It has a speed of about 250 m.p.h. and a range of over 1,000 miles. The ship has a gross weight of 9,000 pounds, a substantial portion of which is made up by an adequate bomb load.

Dive bomber pilots will be trained in their own units. At present, two naval officers are stationed with Air Corps units, one at Bowman Field, Louisville, Ky., and one at the Savannah Air Base, Savannah, Ga., for the purpose of acquainting operations officers with technique and methods developed by naval operation.

In addition, two Air Corps officers, one each from Bowman Field and the Savannah Air Base, where light bombardment units are located and where early deliveries of dive bombers are being and will be received, are on duty for one month at the Norfolk Naval Air Base, attached to navy dive bomber squadrons. At the end of this time they will return to their own fields. However, it is not expected that Army dive bombing tactics will be identical to the Navy tactics. As the situations in which dive bombers are employed will be different, technique will necessarily vary somewhat.

The dive bomber is used to support, and work in close cooperation with, ground

(Continued on Page 24)

Soviet Attitude

by Captain N. Krainev

Recent wars have demonstrated the efficacy of the power-dive bomber. Throughout the Chinese conflict Japanese bombardment aviation has utilized power-diving as the basic method of attack.

The war in Spain afforded many examples of the successful employment of power-dive bombing. We may recall that the Insurgent battleship Espania was sunk by two power-dive bombers. The German Junker-87 power-dive bomber was employed for the first time in this conflict. It was utilized in action against seaport objectives.

German power-dive bombers were employed on a particularly extensive scale in the German-Polish war. The results obtained by them created world-wide discussions throughout the military press. The Allied powers, having no aircraft units equipped with power-dive bombers, rushed the purchase of such aircraft in the United States.

Power-dive bombers were employed on an even larger scale in Belgium and France, especially against important small-size targets. German power-dive bombers attacked concrete structures, airdromes, railway bridges, communication centers behind the Allied lines. Of particular interest is the action of German power-dive bombers in conjunction with motorized and mechanized forces against Allied mechanized units on the march and against their infantry. There have also been noted some power-dive attacks on the part of the British bombardment aviation.

Power-dive functions may be accomplished from high or average altitudes. Compared to bombings from horizontal flight, they afford many advantages. Power-dive bombing enhances considerably the aiming of the bomber, the striking effect of the bombs, and involves less danger, compared to horizontal bombardment action, within the zone of hostile antiaircraft artillery fire. Moreover, power-dive bombers may combine the bombing of targets with the fire action of their cannon or machine guns.

Action from horizontal flight at very

(Continued on Page 20)

THEN THIS... and we were still climbing. About this time the variometer in the front cockpit ceased functioning, but John kept me informed of our rate of climb by telling me continually what the one in the rear cockpit indicated.

At 10,000 feet the altimeter hit the stops on the instrument but we continued to climb for a period that I now compute as seven minutes but which at the time seemed like an hour. Then the bank and turn indicator went out. I could see the ice-covered venturi. I figured it was time for the cloud and me to part company. I had gotten rather acclimated to the rumblings of thunder and its gratuitous gift of frozen precipitation, but honestly I was a long way from enjoying the situation.

There was that beautifully arranged instrument board; airspeed indicator, variometer, bank and turn indicator, altimeter, and compass. Of them all, only the compass continued to give me a reading. From the rate of climb indicator in the rear cockpit and the time of climb after the altimeter hit the stops, I am sure we had reached at least 15,000 feet.

I tried to hold a south course and after what seemed a lifetime, we broke out of the side of the cloud. By this time, we really had a nice load of ice. The bottom of the inside of the sailplane was covered with what looked like snow. Robinson took the controls while I installed an additional variometer in the front instrument panel, and hooked it into the trusty gallon jug.

We continued a south course, and I had no idea where we were. The sky ahead was clear with no clouds in sight. One by one the instruments began functioning as the ice melted; first the airspeed indicator, then the bank and turn indicator. The new variometer in the front cockpit was working fine. Although we held the south course for some time, and I had the map, I am ashamed to say that I had trouble getting oriented. But we continued this course with a constant rate of descent and no apparent thermal activity. After some time, the altimeter dropped to 9,500, then 9,000; even it was working again.

The sky was perfectly clear, and we were pretty sure at 5,000 feet that we wouldn't make Williamsport. At 2,000 feet, we got a weak thermal. After playing with it for a few minutes we left with a 200-foot loss of altitude. To the left was a mountain pass that opened into a level valley. To the right was a plateau between ridges running 30 degrees to the right of our course. The latter appeared to have fields where a landing could be attempted. We could probably have made it through the pass, but there was no altitude to spare. I just couldn't push on the left rudder, and leave those fields on the right.

In my power plane experience, I have returned to the Rio Grande Valley in the Big Bend Country, where as a young pilot I had flown the river bed, a few feet off the water and hundreds of feet below the canyon sides. But on my return trip eight years later, I just couldn't push forward on the stick hard enough to get the airplane down in the canyon. I guess it's just "old age" --smart people call it "experience." I found myself confronted with the problem here. I couldn't force myself to abandon a course, when a good landing was probable, for a sweepstakes ticket through the narrow pass.

We settled to 1,200 feet, then 1,000. Those level fields I saw at 3,000 feet all seemed to slope greatly at the lower altitude. Eight hundred feet altitude and I selected my field, a narrow one without planted crops and sufficiently long, provided I made a good approach. At 600 feet I changed my ideas as to which way the field sloped, so I made a 180 degree overhead, and put her down. Except for a ditch, grown over with weeds, that wasn't apparent from the air, the landing was uneventful. The ditch bounced us back into the air, but there was still sufficient speed to control the sailplane.

We were just 100 miles short of Williamsport but on the right side of the fence in the field selected. Well, I guess that's better than being three feet short and on the wrong side of the fence in the right field. These hours when you await the arrival of a trailer and ground crew give you a lot of time to think. I decided to write the above experience immediately.

This flight was truly the biggest kick in my flying career. As I look back now, it was really sport, but at the time I was in that cloud gathering ice, it was more like labor. To those novices who would repeat or better this flight, let me say-- "When you try it, it's a mighty good feeling to have the National Soaring Champion in the back seat with a set of controls."

"So this is Temple," the aviation cadet of Class 41-G remarked expansively, as he alighted at College Station, Texas.

His instructor at Randolph Field ordered him to write 500 times "I am a 'dodo' for not studying my maps before taking off on a cross-country navigation flight."

A Russian Officer's View

THE GERMAN ATTACK ON LONDON

By Colonel N. Zhuravlew

The air attacks on London afford a good example of the tactical forms modern aviation may assume in operations against large administrative and industrial centers.

To reach London in daylight, German aviation was required to overcome resistance of British pursuit craft disposed at the approaches to the capital. The Germans endeavored to crush the British pursuit aircraft at their airdromes. The British command, however, succeeded in providing its aircraft in due time with sufficient airfields and landing fields to insure the proper maneuver of their aircraft on the ground. As a consequence, the German raids on the British airdromes failed in their mission.

The Germans attempted also to facilitate their approach to London by staging aerial demonstrations against a number of points in South and Southeast England, hoping to divert the British pursuit aviation from approaches to the capital. This tactical method, however, also failed to produce satisfactory results: The British command would not disperse its pursuit craft or divert them for the protection of secondary areas.

The German air forces delivered their daytime raids on London with the aid of mixed groups. These included power-dive bombers of the "Junker-87" type or the fast "Dornier-17" bombers and the "Messerschmitt-110" and "Messerschmitt-109" pursuit craft. The mixed group ordinarily comprised three or four bombardment squadrons of nine airplanes each and two or more pursuit squadrons.

Practical experience demonstrated the expediency of this method. At the same time, however, it has shown that where the adversary is in possession of a sufficient number of pursuit craft, the bombardment craft of the attacker are far from being secure against attack by the hostile pursuit aircraft. Receiving timely information from the observation posts of the appearance of hostile airplanes, the defender is in a position to call out and to have in the air one and a half or twice the number of his own pursuit aircraft--and this was actually the case here.

In escorting the bombers, the single-place pursuit airplanes encountered such tactical obstacles as difficulty in withdrawing from combat and getting away from the hostile pursuit craft because of the fact that, in turning with their tail to the enemy, the single-place pursuit airplane becomes entirely defenseless. The two-place pursuit craft of the "Messerschmitt-110" type were tactically more satisfactory in escorting their bombers. These, however, were incapable of the full protection of their bombers against attack by the hostile pursuit craft.

In a word, the Germans found it impossible to overcome completely the action of the British pursuit craft that were massed at the approaches to London and, not desiring to endure heavy losses in massed daytime attacks on the British capital, resorted to night raids.

Practical experience of aerial engagements during the mass aerial attacks on London has shown that the pursuit craft are capable of attacking the modern fast bombers only from the rear, and this at close range only. Crosswise and frontal attacks are practically impossible because of the fact that the machine-gun fire at long-range, owing to the great dispersion of fire, has little effectiveness, and at close range, in view of the great speed of the airplanes, is almost impossible. Hence machine-gun fire in aerial engagements is opened at a range of 250 to 300 meters, and frequently at not more than 200 meters. However, even though the rear part of the bomber is less protected, the bombardment group, proceeding in close formation, is quite capable of producing sufficiently strong fire protection from the rear so that the pursuit craft, in the case of attacks at close range, will be subjected to serious losses.

The Germans endeavored to overcome the fire of hostile antiaircraft artillery weapons by two methods: By attacks on their battery positions and by a dispersion of the combat formations of their bombardment aviation. Experience failed to justify these methods, and the German air service

increased its altitude of flight during aerial attacks. Even the German night raids are now being undertaken at altitudes of six to seven thousand meters.

The British pursuit aviation and anti-aircraft artillery concentrated in the London area, proved quite effective in daytime action. The Germans, however, unwilling to abandon completely their daytime raids on the British capital, began utilizing their two-place "Messerschmitt-110" pursuit craft on bombardment missions. They possess powerful armament and great speed, and experience less difficulty in overcoming the action of the British in their defense against aerial attacks. The tactical importance of the daytime bombardment attacks carried out by these aircraft consists mainly of the fact that it impedes the work of restoration (especially the extinguishing of fires) and starts fires by which night bombers locate their objectives.

The tactics of German aviation in night operations is characterized by the concentrated attack. There were nights, for example, in which as many as 500 airplanes raided London.

Practical experience has shown the night raids to be far less hazardous than the daytime attacks, though these demand particular skill in the handling of aircraft without the aid of ground orientation features. The Germans execute their night raids by echelons consisting of a score or more airplanes each. To provide maximum safety during flight, each echelon is assigned its own line and precise altitude of flight. The actual raid is delivered not by all echelons simultaneously but by small groups of planes of one or two elements each. This extends the duration of the raids.

In order to enhance the accuracy of their bombardment at night, the Germans usually illuminate their bombardment objectives. They send out special "illuminating planes," which fly at low altitude, and somewhat in advance of the combat groups, and drop illumination bombs over attack objectives. More protracted illumination is provided mainly by starting conflagrations. Incendiary bombs are dropped by the first echelons of the night raiders.

The experience of the raids on London shows that the crushing of a hostile air force by the destruction of hostile airdromes where the enemy has at his disposal a more or less properly developed airdrome system, and where he is in possession of sufficient means for restoration of losses--is a rather difficult matter. This is true, moreover, even where the attacker possesses a relative superiority of forces over the enemy. The neutralization of antiaircraft artillery established on fortified defense positions and equipped with means of defense against low-flying and dive-bombing craft is even more difficult of accomplishment.

The protection of bombers with the aid of escorting pursuit craft in daytime raids still remains an unsolved problem. The matter of determining the proper proportion of pursuit and bombardment craft in mixed aircraft groups during daytime raids on London has proved difficult.

The ratio of 2:1 employed in the Spanish conflict fails in the action against the British.

Nor did the Germans find an effective method for the penetration in daytime of the screen of pursuit aircraft situated at the approaches to their attack objectives. If this proved so difficult of achievement where the bombardment objective was situated a distance of 120 to 150 kilometers (about 75 to 95 miles) behind the advance line of observation posts, the difficulties will be even greater where the bombardment objectives will be situated several hundred kilometers from the front lines.

The two-place twin-motor pursuit airplane proved itself more suitable for daytime bombings which, being a fighter airplane and possessing high ceiling and great speed, experiences relatively small difficulty in overcoming all modern means of antiaircraft defense. Important results, however, may be achieved only by the employment of large quantities of these pursuit craft, since the load which each of these may carry is rather insignificant.

The most effective means in action against bombardment craft flying in close formation is the pursuit plane armed with cannon. It is capable of firing at such range as to remain beyond the reach of the machine-gun fire of the bombers. Though the bombers may suffer some damage from the cannon fire of the pursuit craft, yet, considering the meager effectiveness of the small-caliber shells and the limited reserve of these carried by the pursuit craft, it will not be advisable for the bombers to assume dispersed formations. In such event, these will lose their fire contact among themselves and become easy prey for the pursuit craft in subsequent attacks.

Aerial engagements with the aid of machine-gun fire are conducted at close range, not

(Continued on Page 24)

Facilities Under Construction

GULF COAST PREPARES TO TRAIN 18,000 YEARLY

Facilities for training more than 18,000 military airmen annually are in operation or under construction in the Gulf Coast Air Corps Training Center's administrative area, Maj. Gen. Gerald C. Brant, commanding the center, revealed recently at Randolph Field in a survey of activities under his direction.

Thirty-two primary, basic and advanced flying schools and one bombing range are involved in the training program, part of the Air Corps' plan to train 30,000 pilots annually.

New construction totalling approximately $55,000,000 for the military flying schools will be required to meet the greatly increased training program. Many of the new training schools are nearing completion, as in the case of the twin-engined pilot and bombardier school at Ellington Field, Houston, Texas, and the pursuit pilots' school at Victoria, Texas. Kelly Field and Brooks Field, San Antonio, Texas, "veterans" of many years, are undergoing extensive modernization, at a cost of about $6,500,000.

Twelve thousand of the 18,000 airmen to be trained annually in the GCACTC area will be airplane pilots, 3,000 will be bombardiers, 2,000 will be aerial navigators, and 1,000 will be observers. Of the 12,000 fliers, 7,500 will be trained as multi-engined pilots, and 4,500 will be taught the intricacies of single-engined pursuit planes.

In announcing the details of the expanded training facilities, General Brant pointed out that as late as June, 1939, there were only two Air Corps flying schools in the entire nation - Randolph Field, a combination primary and basic school and Kelly Field, the advanced flying school. Two years and a few days later, 32 major flying fields comprise the Gulf Coast Air Corps Training Center alone, with almost as many schools in each of the other two training centers, the West Coast and the Southeast Air Corps Training Centers.

The thirty-two schools are divided into three categories, primary, basic and advanced. When the program swings into high gear late this fall, there will be 16 primary schools, six basic flying schools, five twin-engine advanced flying schools, three single-engine advanced schools and one gunnery school. Aerial gunnery and bombing ranges will be constructed at numerous points along the Texas coast from Brownsville to the vicinity of Lake Charles, La.

Ten civilian elementary flight training schools, under Air Corps supervision, using Air Corps planes and equipment, are now in operation in this area. Contracts have been let to civilian operators for an additional six schools, which will be in operation by October, making a total of 16 civil elementary flight training schools.

Location of the new primary training fields are: Bonham, Texas; Chickasha, Okla.; Vernon, Texas; Uvalde, Texas; Coleman, Texas, and Ballinger, Texas.

One basic flying school, operated by civilian personnel, and two military basic flying schools are in operation in the area today. Three additional military basic schools will be added to the far-flung training system. Sites have been selected at Enid, Okla., and at a point midway be-

(Continued on page 26)

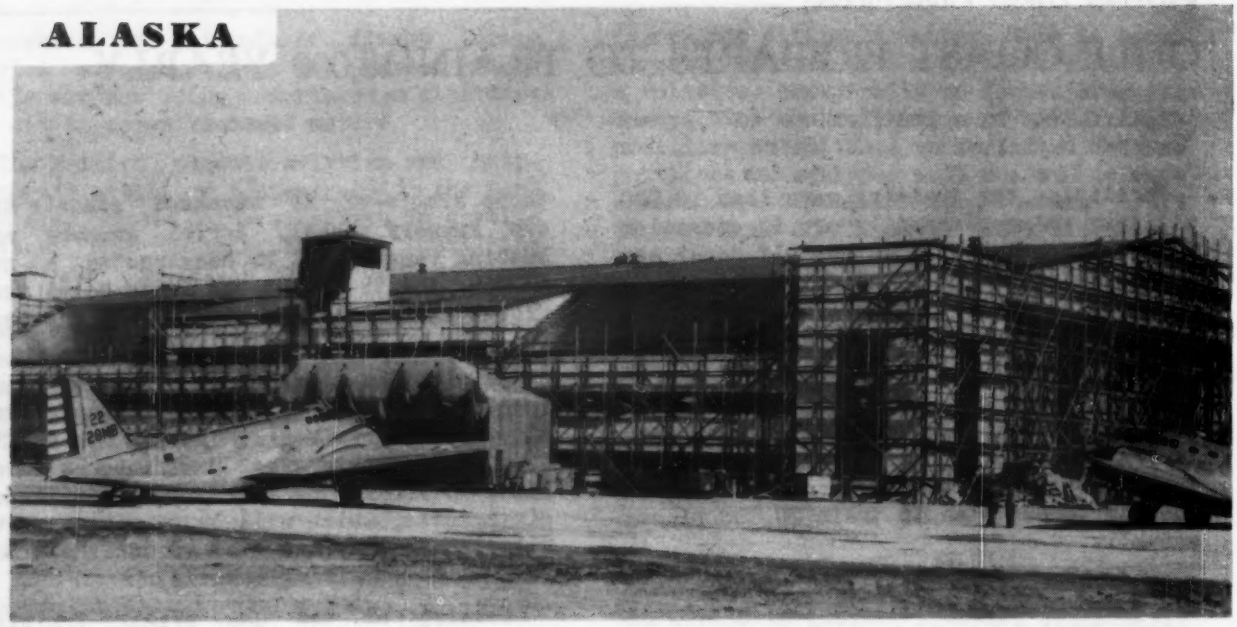
NEGRO SCHOOL OPENS

The first school to train Negro students as officers in the Army Air Forces was opened formally last month at Tuskegee, Ala., when Maj. Gen. Walter R. Weaver, commanding the Southeast Air Corps Training Center, set into motion activities of the Ninety-ninth Pursuit Squadron and Pilot Training School.

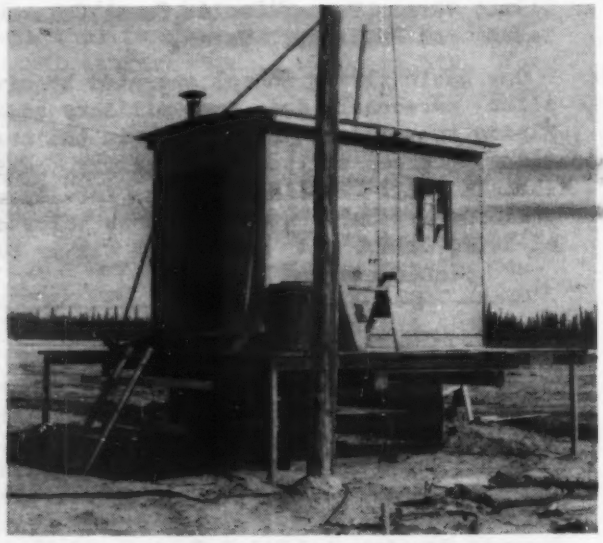
The first group of Negro aviation cadets sat in the shadow of the monument to Booker T. Washington, famed leader of their race, on the campus of Tuskegee Institute to hear General Weaver address the group attending the opening ceremonies. Dr. F.D. Patterson, President of Tuskegee Institute, also spoke and G.L. Washington, civilian director of the flying school, acted as master of ceremonies.

Captain Noel F. Parrish is Air Corps Training Detachment commander at Tuskegee and was among the Air Forces officers participating in the program. Maj. Gen. H.H. Arnold, Chief of the Army Air Forces, and Gen. George C. Marshall, the Chief of Staff, sent congratulatory messages.

ALASKA

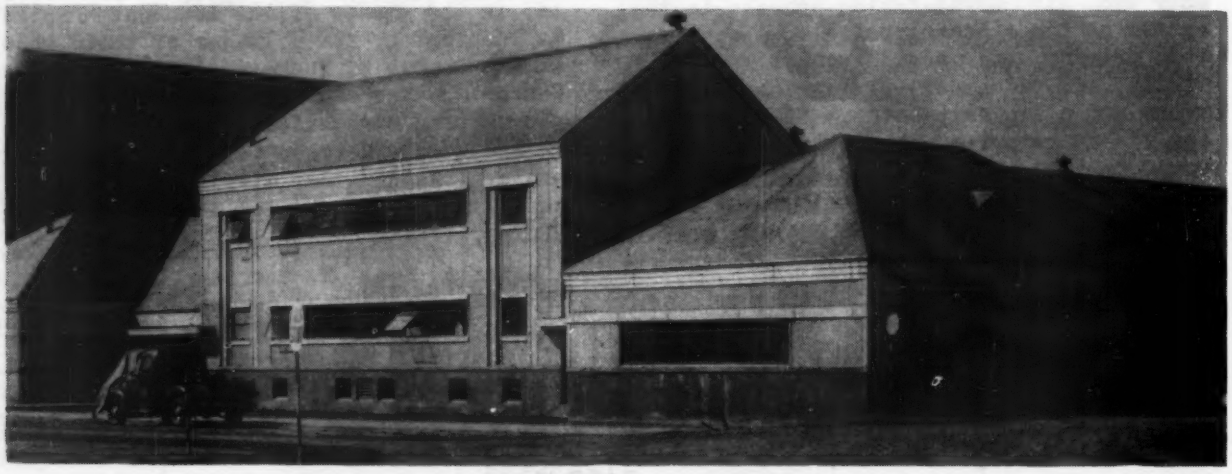


Ladd Field: Hangar under construction



Temporary radio control tower

Boat dock (No ice?)



The Army Air Forces in Alaska: The transport St. Mihiel at Yakutat and Iliamna Volcano, photographed from an F2 photographic plane attached to the photo squadron at Elmendorf Field.

LANDING various materials under consideration were worth a more extended test at Langley Field. Truck tests on swampy ground were held at Langley Field to obtain some idea of the efficacy of a met in distributing a plane load. Tire damage studies were conducted with various surfaces. Five materials were tested with plane loads at Langley Field.

The test program developed certain characteristics which should be found in any mat suitable for use as an emergency landing mat. These include strength, continuity, surface, speed of laying, speed of production and rehabilitation, plus variable factors whose relative importance could not be immediately determined, such as ease of camouflage, cost, cargo space required to transport one runway, weight, ease of reconditioning, skid proofing, usable life, amount of maintenance required, and accelerated tire wear.

Three materials were found which, in the opinion of the Engineer Board, were suitable for use as an emergency landing mat. These three materials were steel plank, Irving grid with slip ring connectors and rod and bar grid with wedge connectors.

In July of 1940, 150,000 sq. ft. of foreign designed Chevron grid, and 150,000 sq. ft. of steel plank were purchased for test at Langley Field. The Chevron grid was found to lack the continuity required at the joints. While the steel plank presented a more satisfactory surface, it was slippery when wet and muddy, and it was difficult to camouflage. Accordingly, the Engineer Board proceeded with a two-fold program: elimination of the shortcomings of the steel plank, and the development of a satisfactory grid type mat.

In regard to the former, improvements were provided to facilitate coupling of the planks. A raised button pattern was provided to inhibit skidding, and truck tests indicated that the buttons helped to a certain extent. Efforts to camouflage the steel planks by paint met with a considerable degree of success. However, the smooth surface, when viewed from a certain angle, reflects light in such a manner that no paint would disguise it. A steel plank with openings stamped in it was devised to permit grass to grow through and help disguise the surface.

Development work on the grid type mat resulted in the purchase of 450,000 sq. ft. for service test in the field. The mat appears to have the physical characteristics required, but costs 50% more than the steel plank and cannot be produced as rapidly.

ANDREWS keys to vast areas. And as a veteran American air officer has been placed in command of the Caribbean defense zone, so the British have placed Air Marshal Sir Brooke-Popham in charge of the entire defenses of the Singapore area.

The Caribbean Defense Command has under its jurisdiction the Panama Canal Department, the Puerto Rican Department and the base commands at Trinidad, St. Lucia, Antigua, the Bahamas, Jamaica and British Guiana. The Caribbean Air Force, which is, incidentally, the largest air force in the history of the United States, operates directly under the Caribbean Defense Command with components located at the various bases. All army air forces in the Panama Canal and Caribbean areas were grouped under a single command in June.

Three Army Air Force brigadier generals were promoted to be temporary major generals in July. They are Brig. Gen. Gerald C. Brant, commanding the Gulf Coast Air Corps Training Center, Randolph Field, Texas; Brig. Gen. Rush B. Lincoln, commanding the Mississippi Valley Technical Command, Chanute Field, Rantoul, Ill., and Brig. Gen. Walter R. Weaver, commanding the Southeast Air Corps Training Center, Maxwell Field, Ala.

Three other Air Corps generals were assigned to new commands during the month. They are Maj. Gen. John F. Curry, assigned as head of the Rocky Mountain Technical Command, with headquarters at Lowry Field, Colo.; Maj. Gen. Barton K. Yount, to command the West Coast Training Center, Moffett Field, Calif., and Brig. Gen. William O. Ryan, to command the Fourth Interceptor Command, with headquarters at Riverside, Calif.

Promoted to be temporary brigadier generals were Col. Henry J.F. Miller, commanding the Air Corps Maintenance Command, Wright Field, Ohio; Col. Ralph P. Cousins, Headquarters, Army Air Forces, Washington, D.C., and Col. Edwin B. Lyon, formerly commanding officer of the West Coast Air Corps Training Center, Moffett Field, Calif.

A welded rod and bar type of grid has been developed which is somewhat cheaper and speedier to fabricate than the riveted Irving grid. Preliminary general conclusions indicate that the steel plank type of mat has far more bearing surface than the grid, requires 50% less cargo space, and can be produced much more rapidly. The open grid type of mat is definitely easier to camouflage than the steel plank type, and is skidproof.

TECHNIQUE

An epidemic of broken cylinder heads has indicated a necessity for a review by the Materiel Division, Wright Field, of the technique of correctly operating the throttle and propeller control. The sequence of events is important. While this information is published in various technical orders, it is consolidated here for ready reference and emphasis.

In the training type airplane equipped with a two-position propeller and an engine having no altitude rating, the technique of reducing engine power may differ somewhat from that required for satisfactory operation of high performance tactical type airplanes.

Following take-off in a training type airplane, the throttle may be left in the advanced position while the propeller is shifted to the high pitch position without subjecting the engine to any adverse operating condition. In the tactical type airplane engine, with its constant speed propeller and variable altitude horsepower ratings, operating procedure on the above method, when reducing engine power, may cause serious overstressing and failure of engine parts.

When power is reduced as outlined above, the throttles are wide open, supplying all air possible to the internal supercharger, so that the cylinder obtains a heavy charge of mixture. In attempting to burn this dense charge at a slow engine speed, preignition, and often detonation, is experienced. Failures resulting from these conditions are cracked cylinder heads, stuck and broken piston rings, burned pistons and scored cylinders.

In airplanes equipped with an exhaust turbine supercharger, the excessive strains on the engine are accentuated because of the attempt of the turbine to maintain a constant exhaust back pressure with a diminished amount of exhaust gases.

Instances of 50 to 60 inches of manifold pressure have been reported when cylinder heads have failed following take-off. Under conditions of excessive manifold pressure immediate failure or overheating are usually experienced. Sometimes the final failure is noted several hours later when cruising at very moderate power. Under some conditions the time lag in the propeller pitch changing mechanism prevents failures in that the slowing of the engine is not rapid enough to produce excessive cylinder pressures. This feature cannot be relied upon to prevent failures because it depends upon the clearances in the propeller and the viscosity of the oil supplied to the propeller.

To reduce to a minimum failures caused by excessive cylinder pressures, it is recommended that the procedure used when reducing engine power be:

1. Close throttle or supercharger control to obtain desired manifold pressure.
2. Reduce engine speed by operating the propeller control.
3. Lean mixture to obtain the desired values.

When increasing engine power, the procedure should be accomplished in the reverse manner:

1. Set mixture control "rich."
2. Increase engine speed by operating the propeller control.
3. Open throttle or supercharger control to obtain the desired manifold pressure. If necessary, readjust the mixture control and throttle to obtain the exact value desired.

It is again desired to emphasize the point that the above holds true in airplanes equipped with or without the turbo supercharger.

A streamlined aircraft maintenance system is being introduced at Gunter Field, Montgomery, Ala., following the efficient production methods of automobile and airplane factories throughout the country.

Prior to entering the hangar to be started on their course down the production line, airplanes will be subjected to a thorough cleaning process. The aircraft radio equipment and other instruments will then be checked; engines tuned, or replaced where necessary; bolts and brakes adjusted, and minor repairs effected. Each operation will be performed at one of a series of stations set up along the production line, where there will be on hand groups of top-flight, experienced mechanics who have had

specialized training for their particular jobs. The idea of keeping the same men continually on the same job will not only result in a considerable improvement in the quality of work but will prove a time-saving factor.

This accelerated maintenance system will be run on a 24-hour basis in three eight-hour shifts. The night and day crews will alternate weekly. An improved lighting system will be installed to eliminate the eye strain heretofore encountered by mechanics working at night.

Before airplanes are returned to the hangar line, they will be carefully inspected by trained technicians and sent up for a flight test.

With the inauguration of this maintenance system, squadrons at Gunter Field will have an increased number of planes in commission, airplanes rarely being absent from the flying line longer than four hours.

Some of the time-saving devices to be utilized in this system will be electrical test benches for checking booster coils, solenoid switches and magnets, and a portable hydraulic brake servicing stand, consisting of a drum of compressed air and brake fluid, pressure gauges, bleed lines, etc.

Lieut. Col. Aubrey Hornsby, Commandant of the Basic Flying School at Gunter Field, an engineering officer of wide experience, feels that this new arrangement will not only relieve the pressure of maintenance in the squadrons and keep a greater number of planes in the air at all times, but will prove the means of giving specialized training and actual experience to the new officers and enlisted men who will be assigned to the miscellaneous crews. They will learn the process of maintenance step by step. Class room lectures will also be given for their benefit.

The trained specialists and noncommissioned officers will come from the Seventy-Second Materiel Squadron, but each squadron at the field will furnish officers and men to learn the process.

A representative of the Vultee Aircraft, Inc., at Gunter Field, Mr. John Harris, has aided in the establishment of the streamlined maintenance system. Capt. H. F. Muenter will be the executive technical supervisor of the system, with Lieut. R.E. Greer as officer in charge of the maintenance.

In view of the tremendous amount of maintenance required in order for this station to continue its schedule of 750 flying hours a day, or an average of from 10 to 12 hours for each assigned plane, a rough idea may be gained of just how beneficial this new maintenance system may prove to be.

A redesigned portable work shelter has proved exceptionally valuable at Goodfellow Field, San Angelo, Texas, in protecting mechanics against both excessive heat and bitter cold while working on aircraft at the Texas air station.

The new shelters are steel frames covered over with waterproof canvas, with flaps on the sides which may be raised or lowered. Mounted on wheels, the shelters may be quickly moved from one place to another. The floor is mounted in the shelter at a position where all parts of the engine are accessible without much reaching or stooping. Immediately beneath the engine the floor is cut away and a detachable oil pan may be suspended there to catch oil or dropped parts. The floor is also cut away beneath the propeller, so that it may be rotated as it is worked on.

During the cold winter months before Goodfellow Field was opened, Lieut. Col. George M. Palmer, post commander, who was at that time doing his own office work in an unheated building, sitting on a nail keg with a typewriter on his knees, decided that his men, who would soon be coming to the new post to work on airplanes on the outside, were going to need some protection against the icy wind and blistering sun of the West Texas plain.

The Colonel mentioned to his men the work shelter he had seen at Duncan Field, but could not forget that they were complicated and required much time to build. Mr. Sgt. H. V. Johnson came forth with a plan for a smaller and simpler shelter that could be built with civil service labor at the San Antonio Air Depot. In addition to being cheaper, the new shelter could be built quickly in relatively large numbers.

The shelters are proving to be more valuable than anticipated. They not only protect the men from severe sunburn, but also prevent the ship from becoming so hot as to burn one's hand when touching it. In cold weather the flaps may be fastened down to form a copy and dry workroom. When the rain does not fall the shelters also keep out dust.

Maj. Gen. Arnold and Robert A. Lovett, Asst. Secretary of War for Air, reviewed 700 aviation cadets August 1 at Randolph Field.

JUNGLE RUNWAY

Do Record Job

A huge runway has been carved out of the heart of the Panamanian jungle, in a major engineering triumph over nature, to provide landing and take-off facilities for Army Air Force planes based at Howard Field, newest air field in the Panama Canal defense zone. A great slab of concrete, more than 85,000 square yards, was poured in 21 days.

From start to finish, nature interposed obstacles to the task. The thick, tangled jungle offered every sort of impediment to the plotting of an air field by ordinary surveying methods, and the impending rainy season threatened to break down the work.

The first problem was to plot the course of the runway. A new twist was given to the art of surveying by selecting the site from the air. There was the problem confronting the Air Corps of attempting to present its decision as to the position of the runway, when going over the location on foot, while in the air the pilots could point out exactly what they wanted.

Translating their wishes to the Constructing Quartermaster's surveyors in the bush, however, was almost impossible, because the pilots could not recognize the plot except when flying over it. So the decision was made to survey from the air.

Several flights were made over the area, prevailing winds were studied and seasonal changes noted. Through the camera opening in the floor of the bomber, 100-pound bags of powdered lime were dropped at regularly-timed intervals. Surveying parties on the ground located the white lime-bursts. After a second trial, they set up their instruments, mapped the route of the bomber by triangulation, and established the runway's position.

The entire contract, including aprons, runway and taxi strips, required the pouring of 180,000 square yards of concrete. The contractor furnished equipment, labor, supervision and miscellaneous materials other than cement, sand, rock and water, which were supplied by the government.

On the technical side arose the task of combating and preventing cracks or checking, in the concrete, which experts said would occur from too rapid evaporation of the water content of the cement, due to

(Continued on Page 22)

FACILITIES EXPANSION

Plant Builders Aided

Project-engineering problems connected with the requests of industrial firms for Government aid for expansion purposes, in order to enable them to meet scheduled deliveries on contracts already held or about to be entered into with the Air Corps, are being met at Wright Field by the Facilities Expansion Branch.

The branch, which will be a year old next month (September) forms part of the Industrial Planning Section of the Materiel Division. It analyzes and evaluates every cost applying to industries set up with Government aid, determines that the subject is adequate and suitable for the production intended, and that the output for each project is standard for the particular type of industry.

The problems of tax amortization of expansion financed by companies with their own capital to meet increased production requirements of the Government are also included in its duties. In executing this work a group of field personnel operate under the direction of the Wright Field office.

To date the branch has thus project-engineered the expansion of some 80 plants ranging in size from $38,000 to $56,000,000, at a total cost which is not communicated to the average taxpayer for fear of the disastrous effect on blood pressure. It is always working with 40 to 50 expansion projects in various stages of progress. It has also refused expansions of industry that could not be justified and has pared down others, thereby saving the Government several hundred million dollars.

The section is doing its small part in what it believes to be a keystone task for the Air Corps in project-engineering industries all the way from setting up magnesium reduction plants to airplane and engine plants. In addition, it has to date analyzed and certified for approval the expansion of some 360 industries that are to receive the benefits of tax amortization.

The cockpits of BT-14's are so hot during the Texas version of the summer months that fifteen instructors at Randolph Field lost an average of eight pounds each during the last two months. They always regain their lost poundage in the fall.

SOVIET . . . low altitude or "hedgehopping" aids in hitting the target, but at the same time lowers the striking force of the bomb. Furthermore, where an object is well protected by antiaircraft defense weapons, heavy losses may be inflicted upon such attacking aircraft.

Horizontal action from great altitude may be utilized against extensive areas. The chances of hitting a target of some score of square meters in extent are negligible. Horizontal bombardment from average altitude will likewise afford slight effectiveness and will be rather hazardous where the target is protected by antiaircraft artillery.

Only power-dive bombing affords accuracy, effectiveness and striking power of bombs together with lesser danger from the action of the antiaircraft defense weapons on the ground.

The essential features of the power-dive bombing consist of the dropping of the bomb at the moment when the airplane is directly over the target, flying at a sharp vertical angle. Aiming is accomplished by the direction of the airplane itself. When power-diving at a sharp angle the trajectory of the plane and bomb is nearly the same.

Theoretically, it might be said that when power-diving at an angle of 90° the trajectory of the flight of the airplane and that of the bomb are identical. The sharper the angle of the power-diving airplane the greater the accuracy of aim. At the same time errors in determining the exact altitude, speed of flight and variations in the course of flight have a much lesser effect on the accuracy of the attack than in horizontal bombing. There remains, however, the influence of the wind on the flight of the bomb. The effect of wind on the flight of the bomb, however, is less in the circumstances, since the speed of the bomb is increased while the time that the bomb is affected by the wind is reduced.

The striking power of the bomb is increased, since being released in the process of the power-dive, it already possesses the initial velocity of the airplane. In dropping bombs from horizontal flight the initial velocity of the dropped bomb is zero. The employment of air bombs with reactive propelling devices, affording the bombs additional velocity, further augment their destructive power.

On approaching a target the power-dive bombers enjoy full freedom of maneuver. They do not require a stage of horizontal flight to take aim, as in the case of bombings from horizontal flight. The very act of power-diving is performed in the course of flight, though it involves the loss of altitude at tremendous speed. This flight maneuverability greatly complicates the aiming of antiaircraft weapons. The greatest losses may be expected from barrage fire, but even here matters are facilitated by the fact that power-diving at tremendous speed reduces the time during which the bomber remains within the zone of antiaircraft fire.

Along with the advantages involved in power-diving, there are also certain disadvantages. Targets may be attacked only with small elements. In the circumstances, the dispersed aircraft enable hostile pursuit planes to attack small groups of planes or individual aircraft.

The theory and actual practice of power-dive bombing resulted in the construction of a new type of plane--the power-dive bomber. The construction features of the latter include ailerons and reverse screws designed to retard the speed of the craft during power-dive actions. In the case of an ordinary airplane the speed attained in power-diving so intensifies the action of the motor as to increase considerably the radius involved in coming out of power-dives.

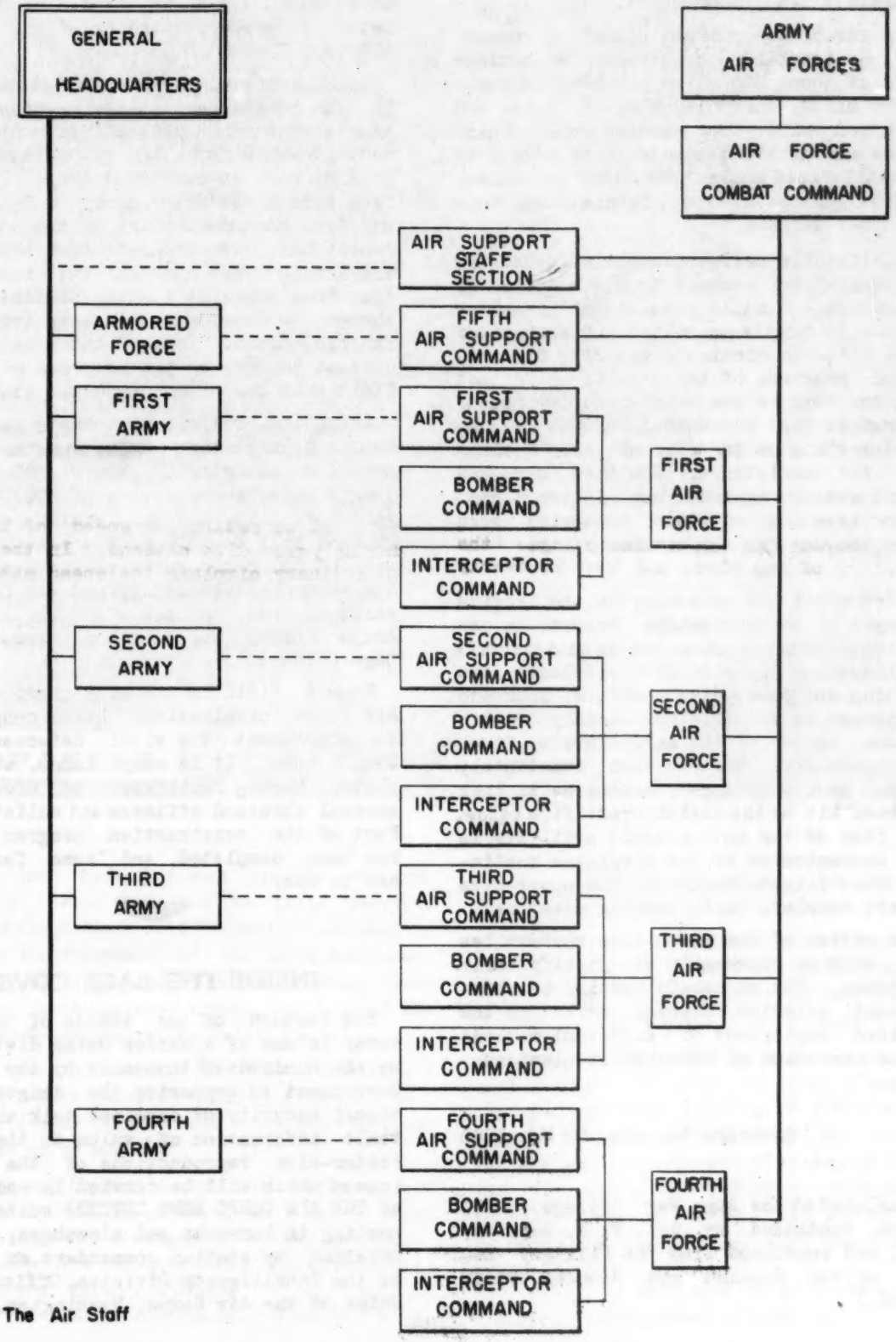
The altitude of the airplane in coming out of a power-dive is proportionally greater with the increased speed of the craft. Greater altitude renders aiming more difficult and complicates the bombing. The employment of devices for slowing down the dive of the plane retards the drop and thus facilitates the functions of the airplane crew. The power-diving Junker-87 bomber attains a speed in power-diving of about 470 miles per hour. The employment of the slowing-down devices lowers this speed to 280 miles per hour. For the purpose of increasing the radius of action of the Junker-87, extra gas containers are carried on bomb racks under the airplane wings.

At the outbreak of the Second World War in Europe only the German air service possessed special aviation units of power-dive bombers. These were equipped with the Junker-87 and Henschel-123 planes and were extensively employed in the war against Poland.

The single-motor, two-place power-dive

(Concluded on Page 22)

ORGANIZATION
OF
ARMY SUPPORT AVIATION



SOVIET ... (Concluded) Junker-87 bomber has a maximum speed of 206 miles per hour, a radius of action of about 519 miles, and is capable of lifting one 1,000 lb. bomb and four 110 lb. bombs. These planes are employed in the bombing of bridges, railway centers, industrial objectives, as well as against troop concentrations.

The one-place pursuit plane and power-dive Henschel-123 bomber have a maximum speed of about 220 miles per hour, a range of 560 miles, carry 440 lbs. of bombs and are armed with four machine guns. These planes are utilized primarily in action on the battlefield against artillery batteries, machine-gun nests, troops in shelters, tanks and other targets.

Considerable assistance was afforded by the power-dive bombers to their forces on the ground. A major portion of these was attached to mobile motorized and mechanized units with the mission of insuring the continued progress of these units. Contact with the bombers was maintained by radio. The moment that mechanized columns encountered resistance the aircraft were called upon for assistance. Combined air and ground attacks against hostile troop concentrations and antitank batteries soon paved the way for the advance of the Germans.

A few words are necessary on the tactics employed by the power-dive bombers in attacking objectives protected by antiaircraft artillery. A group of five airplanes, two of which are power-dive machines, approach the target at an altitude closely within maximum range of the antiaircraft fire. The power-dive bombers then immediately descend upon the target, acting as if they had been hit by the antiaircraft fire below. The fire of the antiaircraft artillery is then concentrated on the airplanes continuing their flight--meanwhile the power-dive bombers complete their bombing missions.

The action of the power-dive bombers has been such as thoroughly to justify their existence. The successful action of bombardment aviation, however, calls for the combined employment of different methods in the execution of bombardment missions.

Krasnaya Zvyezda, 23 May 1940

(Translated at the Army War College, Washington, condensed by Col. F. M. Barrows, F.A., and reprinted from The Military Review of the Command and General Staff School.)

JUNGLE ...(Concluded) high daytime temperatures. The newly laid concrete was, therefore, cured by covering with water-soaked burlap, followed, after its initial set, by a coat of black asphalt emulsion. This latter spraying operation also reduces the sun glare reflected by the runway surface, which is an important construction detail to prevent blinding of the landing pilots.

Speed achieved on this project was largely due to the fact that the constructing quartermaster had planned for months in advance, and his force had accumulated a huge pile of rock at its own quarry. Roads had been hacked out from quarry to runway site, and from the cement plant to the work area; cement had been ordered from the States and arrangements made for its transportation from dockside via the Thatcher Ferry across the Canal and thence by truck to the storage sheds. These factors had an important bearing on the progress of the air field when the actual work was started.

Among the preliminary tasks accomplished by the Constructing Quartermaster's force were the clearing of about 1,000 acres of jungle underbrush; moving of 800,000 cubic yards of dirt, and the leveling of a long 27-foot hill to fill in the hollows. There were 32,000 cubic yards of rock mined at the Howard Field quarry and 14,000 cubic yards of sand scooped from the beach at Bruja Point. The task required 186,000 bags of cement.

Howard Field is one of a group of Army Air Force installations being constructed to supplement the vital defenses of the Canal Zone. It is very large, when completed having facilities to accommodate several thousand officers and enlisted men. Part of the construction program already has been completed, and some facilities are in use.

INSIDE THE BACK COVER

The cartoon on the inside of the back cover is one of a series being distributed by the hundreds of thousands by the British Government to emphasize the danger to national security of careless talk which reveals information of value to the enemy. Poster-size reproductions of the series (one of which will be carried in each issue of THE AIR CORPS NEWS LETTER) suitable for posting in barracks and elsewhere, may be obtained by station commanders on request to the Intelligence Division, Office of the Chief of the Air Corps, Washington.

American rearmament must include more than guns, at least in regard to Latin America. Hemisphere defense will depend on our ability to win the friendship of the Latin Americans. That is the assertion of Professor Henri Louis Gueydan, distinguished scholar and head of the Spanish Department at Barksdale Field, La.

Air bases in the South American countries and United States loans for armaments are important the professor grants, 'but they can be turned against us by enemies.'

Professor Gueydan's teaching includes more than mere Spanish grammar. In fact, he says, a knowledge of the language can be a dangerous instrument in a person's hands unless he understands the Latin temperament. A knowledge of South American psychology is at least as important as an ability to converse. On this point the Germans are way ahead of us.

'The Germans thoroughly prepare their agents in Latin American psychology before they send them to that country, and they have badly undermined us down there,' the professor says.

His work at Barksdale is arranged to provide this background. Four classes of one hour each are held from 9:30 a.m. to 3:45 p.m. daily except Saturday and Sunday. But Professor Gueydan goes beyond mere classroom drill. He has initiated a series of open forum meetings which are held in the Barksdale Theater for his students, their families, and others who may be interested.

A meeting is held each Friday afternoon and

(Continued on page 26)

WE LEARNED... (Concluded) flights. Of the seven cross country trips taken, six terminated on airports. The average distance was 50 miles. The customary procedure was to cut loose from the tow plane at 3,000 feet. When thermal activity was encountered, the pilot would spiral, gaining all the altitude possible. He would then resume his course until the next thermal was encountered, when the spiraling would be repeated.

It sounds easy but required considerable practice. The advantages in landing on an airport at the termination of the flight are twofold. First, you are assured of a decent landing field without last-minute discoveries of ditches, power lines, cattle, etc. Secondly, the sailplane can be towed to the home airport by airplane tow with the resulting saving in trouble of dismantling the sailplane and trucking it back on a trailer.

LONDON..(Concluded) to exceed 250 to 300 meters. Action at greater range may be resorted to only where the aircraft are equipped with cannon. The best armed airplane so far has proved to be the machine-gun and cannon equipped pursuit plane.

In the case of the swift bomber, threat of pursuit craft machine guns is only from one direction--40 degress in the rear hemisphere--primarily against the lower portions of the bombers.

The modern night antiaircraft defense is suffering from a variety of important deficiencies; as a consequence, night raids have proven relatively safe. The Germans have transferred their efforts to night undertakings.

The value of the experience to be derived from the raids on London is exceptionally great, inasmuch as it has permitted the verification of a series of theoretical assumptions. Some of these may be now corrected, others as thoroughly refuted. Of equally vital importance is this experience in the construction of airplanes and motors.

From Krasnaya Zvyezda, 31 December 1940

(Translated at the Army War College, Washington, D.C., and condensed by Capt. O. C. Michelmann, Military Intelligence.

Reprinted from The Military Review of the Command and General Staff School, Fort Leavenworth, Kans.)

NEW TYPE..(Concluded) forces--particularly armored divisions. Coordinated action of armored ground forces, in constant communication by radio with cooperating dive bomber forces, has proved to be the deciding factor in many of the campaigns of the European war.

Early experiments with the technique of dive bombing were made in Haiti by the Marine Corps in 1920 and 1921, at a time when the entire Marine aviation group consisted of only 42 pilots. In these early efforts DH4's of World War fame were used, and both bombs and bomb racks were improvised.

Experiments with dive bombing by naval aviation between this time and 1927 were conducted mostly with Vought Corsairs and Curtiss Falcons, the latter an Army airplane. Theories of bomb fragmentation, angle of descent, optimum altitude, etc. were developed in this period. Complicated bomb sights which had been used earlier were discarded as increasingly steeper dives enabled more effective bombing to be accomplished merely by using the gun sights.

Results of this early development were first released to the public in 1927 at the first Miami Air Races, when targets placed in full view of the spectators were subjected to dive bombing attacks by naval aviation units in an impressive exhibition. At this time Navy and Marine Corps authorities decided to design a special plane for dive bombing, as the potentialities of this method of warfare had become so evident. This first dive bomber was the famous Curtiss "Hell Diver," produced in 1929.

Dive bombing was employed extensively between 1927 and 1931 by Marine forces in Nicaragua against bandit and revolutionary factions in that country. Standard planes were used, with 30-pound fragmentation "personnel" bombs.

Their use by the Germans, who picked up the idea in this country, was particularly effective in the Lowlands campaign and in France.

SPANISH..a South American country is discussed. A short address is made by Professor Gueydan, in which he relates native anecdotes and draws from his experience a picture of the psychology of the people. A film obtained from the Pan American Union at Washington, D.C., illustrates each talk, and the music of the country is played on a phonograph. The lectures are given to afford the officers a good look into what makes the Latins tick, a knowledge that is indispensable, the professor insists.

ALASKA RESCUE

Down on Island

The pilot of a B-18A landed on a tiny island in the Alaskan wilds last month when the right engine quit while he was flying in a six-ship formation after completing a photographic mission. Members of the crew escaped unscathed.

Mr. Sgt. Barron C. Powers and Tech. Sgt. Ralph S. Davis, members of the First Photo Section at Maxwell Field, described the forced landing when they returned to the Southeast Air Corps Training Center recently, after spending a month on the photo mission in Alaska.

"We had accomplished our mission and had taken off from Juneau on the way back," they said. "It was 1 P. M. when the right motor said 'whoof' and quit at 5,300 feet. The pilot feathered the propeller.

"We sat quiet, buckling on safety belts. We were a six-ship formation of B-18A's. The other five ships wheeled over us. We were headed down. Some jagged mountain peaks were coming up. The Pacific was out on one side.

"We were losing altitude fast. The pilot took over for the co-pilot. I heard him tell the flight commander we were going down. Not a word was said that wasn't an order. We were down to 800 feet and the mountain tops were looming up at us.

"There were several choices. We could 'chute out. We could mush down without wheels, but there was a lot of gas in the belly tanks of the ship. We could plane down on the water but there was the chance of submerging. Suddenly we were clear of the mountains and saw a little island out in the ocean. It turned out to be 165 paces long...about one tenth as wide. We saw driftwood and timber in its middle.

"We hit on one end of the island and bounced 50 feet high. The jagged timber we would have hit if we hadn't bounced, slipped underneath us. We hit again, bounced, and stopped. I stepped off from the place the plane hit to the edge of the island. It was exactly 165 paces. That plane had travelled 164. Two feet away was deep water. At high tide there wouldn't have been an island.

"And the tide was changing when we hit. We salvaged the radio and some other things before the water rushed over the ship. We built a fire on the one little strip of ground the inrushing water left. We ate some canned goods. We were shivering, and built a fire although it wasn't cold.

"The other five ships in the formation roared low, and we signaled nobody was hurt. We began to hear the putt-putt of a motor launch. A Canadian doctor out fishing had seen us go down. He went for help. In seven hours some men from the Canadian Royal Air Force base at Prince Rupert, came for us in a larger launch.

"We had bacon and eggs at the Prince Rupert barracks that night...and say, if those RCAF fliers were any nicer to us, they would have had to dress and undress us. They treated us like kings.

"All the Canadians were like that...hospitable. Once we landed at a place called Prince George, and the entire population of 1,500 turned out and ran or rode bicycles seven miles just to greet us. (Gas there costs 57 cents a gallon). At the village of White Horse on the Yukon, they gave us moose steak."

HOUSING

Noncommissioned officers assigned to the New Orleans Army Air Base, who are authorized to live off the post, now can obtain apartments in the low-rent housing projects of the city of New Orleans at rents ranging from $8.25 to $22 per month, all utilities included.

Lieut. Col. Clarence H. Welch, base commander, completed arrangements July 1 with the local housing body, which operates under the Federal Housing Authority, whereby rental paid by noncommissioned officers, will depend upon the soldier's income, including both pay and allowances.

Rent paid in the housing projects includes all utilities--water, electricity for lights and refrigeration, and gas for cooking and hot water. Each home is equipped with an electric refrigerator, four-burner gas range, hot water heater, combination sink and laundry tray.

Rent schedules are arranged according to income and the space required by the family. It thus might be that a three-bedroom home might cost the occupant considerably less than another tenant would pay for a one-bedroom home. In other words, a staff sergeant with no children, requiring only one bedroom but enjoying a certain income, would pay more for an apartment of that size than a sergeant with three children and a smaller income would pay for an apartment with three bedrooms.

FACILITIES... (Concluded) tween Sherman and Denison, Texas. The third site has not received fromal War Department approval. It is expected that this school will be located in central Texas, probably in the vicinity of Waco.

Two advanced flying schools have been functioning throughout the expansion program, Kelly and Brooks. Two additional advanced flying schools, Ellington Field and a field at Victoria, Texas, are under construction. Ellington Field, a combination twin engine pilot training school and bombardier school, is almost ready for occupancy. The single engine pursuit training school at Victoria will start operations in early fall.

New single engine advanced flying fields will be established in the near future at Lake Charles, La., and Mission, Texas. Midland, Texas, will be the site of a multiengine pilot school and bombardier school. Lubbock, Texas, has been chosen as the location for another twin engine school. Rounding out the training facilities organization will be a gunnery school at Harlington, Texas, and bombing and aerial gunnery ranges along the Texas coast. Matagorda Island and Matagorda Peninsula will be the center of this activity.

Kelly Field, in addition to operating as an advanced flying school, also will be the replacement center for all student pilots in the Gulf Coast area. Facilities for handling approximately 2,500 aviation cadets now are under construction at that station. Future Air Forces pilots will get a four-week indoctrination course there before starting actual flight training.

Ellington Field will be the replacement center for bombardier students. The 1,000 airplane observers to be trained in the Gulf Coast Air Corps Training Center area will be schooled at Brooks Field along with twin engine pilots.

Nearly 50,000 soldiers, mechanics, aviation cadets and officers will be stationed in the Gulf Coast Air Corps Training Center area at the peak of the training program. Of these there will be 3,000 Air Corps officers, 10,000 cadets, 34,000 soldiers, and auxiliary personnel, such as medical and dental officers, ordnance, signal corps and quartermaster officers, and contingents of the Army Nurse Corps.

Kelly Field will be the largest station within the area in point of cadets, with more than 3,000 being assigned to that airdrome at all times. This figure includes the cadets in the replacement center. Ellington Field, with 1,444 student pilots, bombardiers, and cadets in the Bombardier Replacement Center will be second in size. Randolph Field will have the largest number actually engaged in flight training, with 900 future pilots receiving basic instruction at all times.

In announcing the details of the expanded training program, General Brant pointed out that 4,236 pilots were trained by the Army in the 17-year period from 1921, when the modern training system went into effect, until the summer of 1939, when the first Air Corps expansion got under way. In the fiscal year 1939, total pilot output was about 325.

Discussing the $55,000,000 worth of new construction, General Brant pointed out that $40,000,000 already has been authorized by the War Department and that the additional funds should be forthcoming as detailed plans are completed. These figures do not include the construction costs of the six new civilian primary flying schools.

Texas, long the center of military aviation continues to hold her place with 23 of the 32 Gulf Coast Air Corps Training Center flying schools being located in the Lone Star state. Oklahoma ranks second with five schools. Arkansas, Louisiana, Missouri and Illinois have one each.

The ten original primary flying schools in the GCACTC are located at Stamford, Cuero, Corsicana, and Fort Worth, all in Texas; Oklahoma City, Tulsa and Muskogee, in Oklahoma; Pine Bluff, Arkansas; Sikeston, Missouri, and East St. Louis, Illinois.

Randolph Field and Goodfellow Field, San Angelo, Texas, are the two military basic flying schools in operation. Brady, Texas, is the site of the only civilian operated basic flying school in the area.

Thirteen autogiros of a new design have been ordered by the War Department for test by the Field Artillery (cooperating with the Infantry, Cavalry and Armored Force) as "flying observation posts." The tests will be conducted during maneuvers after a squadron has been formed.

The ships will be of the jump take-off type, and will be capable of descending almost vertically. They will be employed only over territory in the hands of friendly troops, the Field Artillery believing that "enemy fighting ships cruising at low speed would run head on into ground fire or be attacked by our own fighters" if they attempted to attack the autogiros.

Keep the Record Straight

By Major Waddell F. Smith

Many claims by dependents of military personnel for Government Insurance, National Service Life Insurance, pensions, compensation, six months' gratuity and arrears of pay are unduly delayed because of not having at hand properly certified copies of birth and marriage certificates and divorce decrees.

Probably 75 per cent of people over the age of 35 are under the impression that they cannot obtain a birth certificate. Most all of these people can obtain a birth certificate if they write to the proper office of record.

Officers and enlisted men themselves do not need birth certificates except for passport purposes. However, it is always desirable to have one. It is paramount, however, that all military personnel should have on file authentic certified copies of the record of birth of wife and children and a certified copy of the record of marriage. If either husband or wife has been previously married, no certificate of that marriage is required but a certified copy of the record of the divorce is required.

Whenever a certified copy of the record of birth or marriage may be obtained, then no governmental agency charged with settling a claim will accept anything in its place. From this it may be seen that church records, records of family Bibles, affidavits of parents, affidavits of people who knew the parents at time of birth, affidavits of individuals who witnessed a marriage, ministers' certificates of having performed a marriage, etc., are all refused.

From the foregoing it may be seen that the first step is to determine if there is available a public record in the state, county or city in which born and in which married. Military personnel should write immediately to the proper authorities to obtain these documents. As the United States Veterans Bureau has been constantly called upon to advise claimants where to obtain certified copies of these public records, Mr. Luther E. Ellis, of the Veterans' Administration compiled the names and addresses in all states and possessions of the offices charged with keeping the public records of birth and marriage.

The book is of such great utility that the United States Social Security Board asked permission to reproduce it. The author is glad to be able to advise that this book, under the name of "Custodians of Public Records" is in the hands of each of 477 field offices of the Social Security Board. These field offices are all being advised to make the information in the book available to Air Corps personnel who can visit any of the field offices.

In this volume will be found a separate listing for each state and where to write and how far back the records of marriages and births go. Where it is found that state records were not kept previous to certain dates it will show what county and city authorities may be written to to obtain the records locally. The book also advises on records of deaths and divorces.

Obtaining these necessary certified copies of the public records is very easy to put off. However, it must be remembered that it is much easier for the records to be obtained now than to leave the job to dependents, years later. The payment of many claims for Government insurance, pensions and compensation have been held up because of delay in obtaining certificates, frequently occasioning much financial embarrassment to dependents. Even when it is found that no state records are kept, many cities and counties have bureaus of vital statistics available and it always should be the rule to write to the bureau of vital statistics of your city or county, when no state records are available.

Much bad information and misunderstanding is extant about birth and marriage certificates. For example, in order to marry, a license must be obtained--but that is not sufficient to support a claim, for the marriage might not even have been performed. But let's assume that it was. Then the minister or church official who performed the service furnished a very beautifully engraved certificate that he did on a certain day perform said marriage. That still is not sufficient. However, the minister or church official, after performing the ceremony, makes a return affidavit with the license to the bureau of vital statistics which is charged with keeping the record. That office then makes an official record of the marriage. A certified copy of that record, issued under seal by that office is what is actually required.

Whenever a birth occurs, all physicians, hospitals and institutions are required to report the birth along with the name of the child, its sex, names of parents, etc., to the bureau of vital statistics charged with maintaining the public record. The birth then is a part of the public record and a certified copy of that record, issued under seal by the office or bureau in charge is the document required to support a claim.

It must be recognized, however, that in some cases there are absolutely no available public records of births and marriages. In these cases then other proof will be accepted, but it will not, however, be accepted until or unless a certified statement is obtained from state or county officials verifying that no public record of the birth or marriage is obtainable for the period in which the birth or marriage occurred. That being established, it then is permissible to establish proof in other ways as follows:

PROOF OF AGE

1. A Certified Copy Of A Church Record If The Child Was Baptized In A Church. Many churches maintain such records and the present registrar of the church will make a sworn statement of the record.

2. Sworn Statement Of Doctor Who Officiated At The Birth Of The Child. In many cases this cannot be obtained, due to death of the doctor or removal from the community. If obtainable, the doctor must swear to it before a notary.

3. Sworn Statement Of Two Witnesses Present At The Time Of The Child's Birth. This affidavit must be made by individuals who knew both parents at the time of and before the birth, but they do not actually have had to be present at the birth itself, but must certify that they knew of the birth and of the naming of the child, etc.

4. Notarized Certificates From Entry In Family Bible Of The Birth. There are many avenues for fraud in making certificates from entries in family Bibles; therefore, such certificates may be refused and other proof required. Or the family Bible itself may have to be produced.

5. Request Veterans Administration To Obtain From Bureau Of Census The Record Of The Family From First Record Of The Census Which Was Made After Birth Of The Child. This method is only a last resort and is not requested by the Veterans' Administration unless they are convinced that no proof of age can be obtained as outlined under the previous steps. Then the Veterans' Administration must be requested to obtain it from the Census Bureau.

There is an unending delay in the settlement of claims, while awaiting proof of age and it is, therefore, incumbent upon all military personnel who are married to begin immediately to obtain acceptable records of birth of a wife and children. It will be noted that affidavits of parents to establish proof of age has not been listed as acceptable.

PROOF OF MARRIAGE

1. Certified Copy Of Church Record If Marriage Was Performed In A Church. See Proof of Age, No. 1.

2. Sworn Statement Of Minister Or Public Official Who Performed The Ceremony. See Proof of Age, No. 2.

3. Sworn Statement By Two Witnesses Who Were Present At The Performance Of Ceremony. See Proof of Age, No. 3.

4. A Notarized Certificate Made Up From Entry Of The Marriage In Family Bible.

DECREES OF DIVORCE

Whenever a widow is claiming pension or compensation for the death of a husband, and it is shown that either the deceased or the widow or both had a previous marriage, then a certified copy of the public record of the divorce proceedings must be obtained and submitted before the right of the claimant can be established.

In order to obtain copies of divorce decrees, a request should be addressed to the clerk of the court which granted the divorce. In a good many states, state records of divorces are kept, compiled from reports submitted by the county courts. Even though some states maintain records of divorces, they may not have any information other than the names of the principals and the date of dissolution of the marriage. For pension purposes a certified copy of the actual decree and the terms thereof is required; therefore, the copy of the decree should be obtained from the court which granted it.

The book, "Custodians of Public Records," also lists information for each state, giving the proper method of addressing the county courts and it also supplies information as to which states maintain state records of divorce.

Inasmuch as certified copies of divorce decrees must be presented in support of a claim, then they should be obtained at

once. Many cases are on record of court houses burning, resulting in destruction of records. Get them now when it is easiest. Dependents when making a claim are always badly unnerved and it is the duty of all military personnel to obtain these necessary supporting documents in advance.

Certified marriage certificates are not required for the settlement of United States Government Insurance, National Service Life Insurance or policies issued by commercial life insurance companies. However, as National Service Life Insurance is paid to the beneficiary only in installments, a certified copy of the record of birth must be submitted. Even if the beneficiary is under the age of 30 and receives the fixed installments of $5.51 per month on $1,000, for 20 years, a birth certificate is still necessary to establish that the age is under 30.

If the proceeds of either United States Government Insurance, or policies issued by commercial life insurance companies are to be paid as a life income to the beneficiary, then proof of age will be required as the amount of the income is based upon the age of the beneficiary.

A great deal of misunderstanding exists about photostats. Many individuals have had numbers of copies of birth certificates and marriage certificates photostated and it must be said that they are unacceptable. Actually the original itself in order to be acceptable would have to meet the requirements as set out in this article. Even if the original is acceptable, the photostats would not be.

Photostats are acceptable, however, when they are actually made from the public record by the bureau of vital statistics or other official agency in charge of the public record. It then is good only if before the photostat is made, a marginal indorsement is made certifying that it is an official photostat of the public record. It then must be signed under the seal of the issuing office.

Very recently the Office, Chief of Air Corps published a pamphlet titled, "Insurance, Estate and Wills," which is now in the process of distribution throughout the United States Army Air Forces. It was not possible in that to go into detail about birth and marriage certificates and divorce decrees; therefore, the material in this article may be considered as a part of or an addition to that publication.

This article is the ninth of a series which has been published in the Air Corps News Letter. Following publication of this article, all nine are to be combined into a compendium on insurance and printed for distribution throughout the United States Army Air Forces.

A year's intensive training in aeronautical engineering for six Air Corps officers ended July 31, when they received diplomas from Brig. Gen. George C. Kenney, Commandant of the Air Corps Engineering School, Wright Field.

In the graduating class were Lieuts. Evart W. Hedlund and Harold M. Keeffe, from the Fairfield Air Depot; Edward G. Kiehle, Duncan Field; Elmer E. McKesson and Bernard A. Schriever, Wright Field; and Ralph L. Wassell, Middletown Air Depot.

Courses taught at the Engineering School include basic theoretical instruction in aircraft, engine and propeller design; fundamental subjects such as mechanics, strength of materials, and aerodynamics; and practical work in the various laboratories and shops at Wright Field in armament, radio, electrical and miscellaneous equipment. Air Corps inspection methods, depot operation, and procurement procedure are additional practical subjects.

The new Air Corps Basic Flying School at Sebring, Fla., will be completed in approximately seven months.

One of the 33 flying schools operating or under construction in the Southeast Air Corps Training Center, the Sebring school upon its completion will house 217 officers, 475 cadets, 1,930 enlisted men and 15 nurses. When and at what stage of construction troops will be stationed at the new field has not been announced.

The estimated cost of the Sebring project is $3,627,640.00. Of this amount, construction projects costing $2,014,879.00 will be undertaken immediately, and the remainder at a later date when sufficient funds are made available. Like most of the other new fields in the training center, Sebring will be about four square miles in area. The buildings will be of the temporary wooden type of construction.

In the layout will be 32 barracks for enlisted men; 13 cadet barracks; one barracks for negroes; 11 day rooms of the Air Corps type; 11 supply rooms; mess halls for enlisted men, cadets and officers; one chapel (to include an organ); quarters for the commanding officer; three administrative buildings; one fire station; one guardhouse; one infirmary and nurses' quarters; and one officers' club.

SUPPORT ... (Concluded) delivered to the Army by the manufacturers.

Flexibility in the use of the air arm will be increased through the formation of the Support Commands, it was explained in Washington when the new organizations were announced. The measure assures effective air-ground teams, like the infantry-artillery combat teams in the ground forces, but the field armies and the Armored Force do not have to rely entirely on their own particular support command. If the situation requires it, additional aviation may be called into action.

Nor does the plan require any change in the principle that all types of units of the Air Force Combat Command must be trained and used in support of ground forces. When conditions make it necessary, air support aviation may be used for special Air Force missions, in conjunction with naval forces or with ground forces other than those to which they are specifically assigned for cooperative action. Thus it is possible to conceive of a squadron of dive bombers being directed to attack enemy destroyers which somehow had managed to approach within short range of a coast line.

Although the Support Commands will be confined to no particular geographical boundaries, their prime function requiring them only to operate where cooperation with their particular ground force makes it most efficient, they are assigned each to a broadly defined area. These conform generally to the areas in which the respective field armies function.

The First Air Support Command, for example, will operate in the area defined roughly as from Maine in the North to South Carolina in the South, and west as far as Ohio. The Second has the Great Lakes and Mississippi Valley region, including Ohio and Nebraska and as far south as Oklahoma and Arkansas. The Third is in the Gulf Coast and Georgia area, functioning as far west as Texas and including Florida. The Fourth includes the West Coast area, from Mexico as far north as Canada and on the east to Wyoming and Texas. These are only hazy boundaries and not, in fact, boundaries at all in the true sense of the word.

The Air Support Commands may be expected to function very much as the German aviation described by Capt. N. Krainev, of the Russian Army, in his description (starting on Page 9 of this issue) of dive bombers in the Battle of Poland. A chart showing the organization of the Support Commands, their relation to ground forces and other Air Forces units is on Page 21 of this issue.

Articles for News Letter

Expansion of the Army Air Forces from a relatively small, underequipped unit to a modern, streamlined fighting organization finally has had its effect upon the Air Corps News Letter. As readers may have noticed in this and the preceding issue, the News Letter has abandoned its small-town character for one of big-time journalism.

The personal note which seemed appropriate when the Air Corps community was restricted and static no longer is effective in keeping informed the greatly augmented Air Forces. There are just too many of us now to mention so many names. Consequently, the News Letter is being transformed, to meet the new requirements for information, by striving to present professional and technical articles in the field of military aviation.

As a professional journal the Air Corps News Letter will undertake (a) to stimulate high morale and an "esprit de corps" in the Army Air Forces, (b) to disseminate information of technical and professional interest to personnel of the Air Forces, and (c) to keep the Air Forces personnel advised of organization changes, policy revision and items of current interest.

While differing from periodicals of general circulation, in that it is restricted to the subject of military aviation and related activities, the News Letter is like other journals in depending upon the cooperation of its readers for complete success. For that reason, correspondence from personnel in the field is welcomed.

Especially desired are technical and professional articles believed valuable to the training program of the Air Forces. Facilities are available for the publication of illustrative drawings and pictures, so such material should be included when possible. These can be sent to the Editor, Air Corps News Letter, Office of the Chief of the Air Corps, Washington.

The contents of this issue may be regarded broadly as a guide to the type of material desired. If a potential contributor desires additional information before starting preparation of an article, he may write to the editor in Washington.

Army vehicles at Scott Field, Ill., traveled a distance equivalent to more than three times the circumference of the earth during the month of June.

You never know
who's
listening!

CARELESS TALK COSTS LIVES

SUPPORT ... (Concluded) delivered to the Army by the manufacturers.

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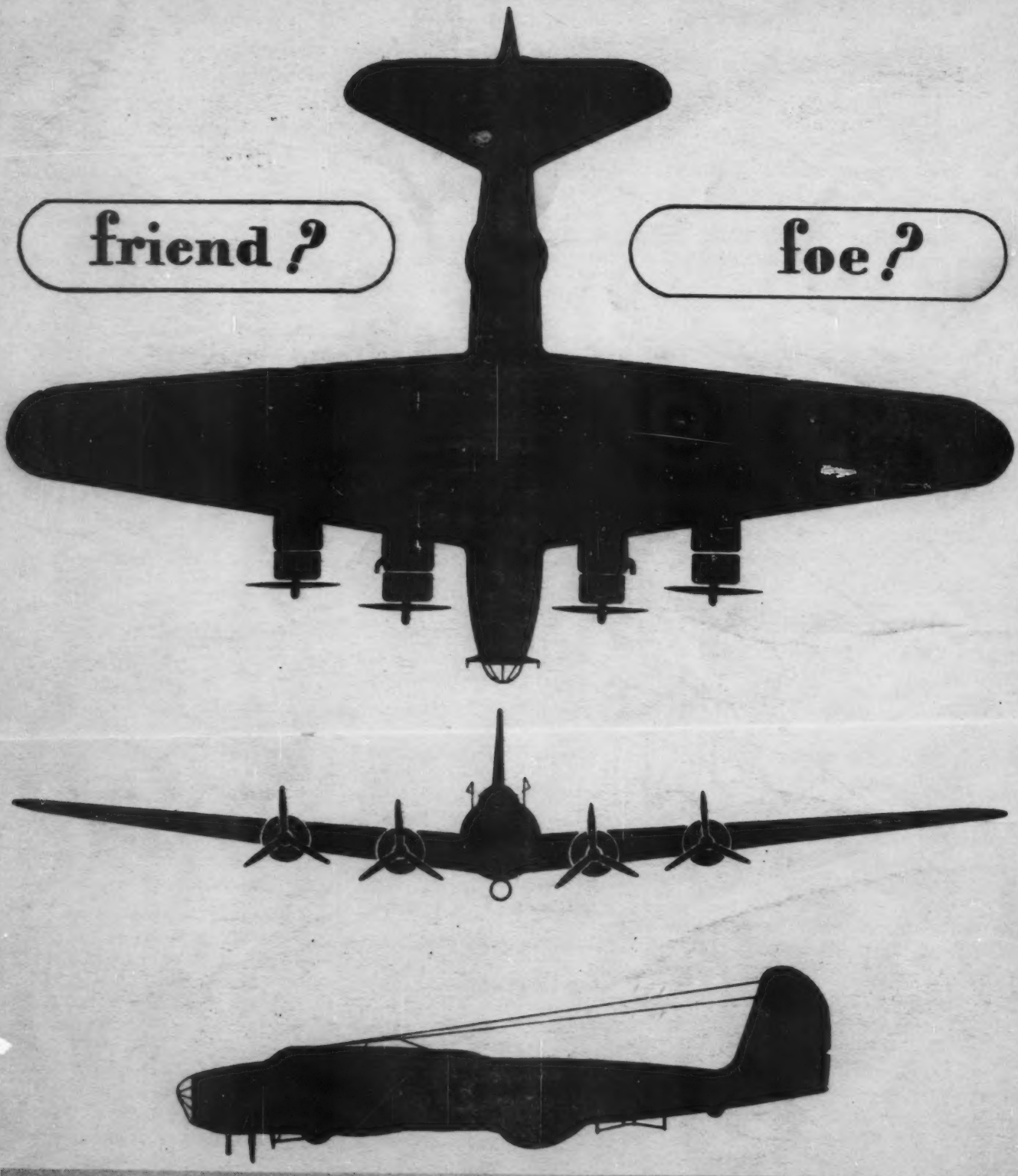
friend ?
foe ?